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PAPERS READ
BEFORE THE
ROYAL GEOGRAPHICAL SOCIETY.

I.—*Journal of an Expedition from Pirara to the Upper Corentyne, and from thence to Demerara*, executed by order of Her Majesty's Government, and under the Command of Mr. (now Sir) Robert H. Schomburgk, K.R.E., Ph. D., &c. &c.

1. *Journey from Pirara, by the River Rupununi, to the Wapisiana village, Watu Ticaba.*

IN furtherance of the objects of my mission to British Guayana, I left George-Town on the 15th February, 1843, with the intention of joining the other gentlemen of the expedition at Pirara, to which place they had proceeded from Roraima, while I investigated the regions north of that remarkable mountain-chain.

I ascended the Essequibo on this occasion for the fourth time; the route, therefore, offered no novelty, if I except the appearance of that remarkable comet which we observed first on the 8th March, and which remained an object of wonder alike to us and to the Indians.

Without having met with any accident on ascending the falls and rapids, I reached Wai-ipukari on the 24th March, and had the pleasure of finding my companions, after an absence of about four months, in excellent health and spirits.

Several of our large boats were still at the confluence of the Pirara with the Mahu, and as they were required for the ascent of the Rupununi, and could not be brought by water, in consequence of the rains usually expected in February not having fallen, I made the requisite arrangements for having two of them brought over-land, though the distance in a straight line was 23 miles, and this would be considerably increased by the detours necessary for avoiding high ground. Pasico, the chieftain of the Macusis about Pirara, undertook to bring them, which he successfully accomplished.

Before we left Pirara we had the grief to see it partly burnt down, through the negligence of a child. I fortunately rescued from her blazing hut a poor old woman, who, though she knew there was gunpowder in it, seemed determined to save a few



articles belonging to her absent grandson. The remains of the former Catholic Chapel, and the house of the late Mr. Youd, next fell a prey to the flames, and it was only with the greatest difficulty that the further progress of the fire was arrested.

The preparations for our departure being completed, and a number of Indians engaged to accompany us;—on

April 30th I bade adieu to Pirara: nor was it without feelings of regret that I cast a last glance on the hut which for so many months had been my residence; for humble as was its appearance, when judged of by the scale of European constructions, I contrasted the comforts I had enjoyed under its shelter, with the sufferings of the many nights I had passed under the canopy of Heaven. The ruins of the missionary's house, near which my road lay as I commenced my journey, its blackened walls attesting the cause of its destruction, and the remembrance of its former inmate, whose first arrival at this spot I had witnessed, and under whose benevolent and judicious conduct I had seen the seed of our Christian religion sown in the heart of the savage, but not permitted to ripen into the perfect harvest before it was cut down—all combined to make me sad. The large wooden cross, which, when the Brazilians possessed the village, had been erected in front of the chapel, and which, as a Protestant, I could not view in the same light that a Roman Catholic would, still brought relief to my feelings: it spoke of hope, the hope that there might yet dawn a better day for the poor abandoned beings, who, just initiated into our religion, were again left to themselves and to nature.

As I proceeded to the embarkation at Wai-ipukari recollections crowded upon me: with what various feelings had I, at different times, trodden the same path, from the time when I first traversed the Savannahs, in 1835, in company with Lieutenant (now Captain) Haining,* to the present moment! And had the cause of religion—had humanity been advanced during the long interval of eight years? Alas! no. The ruins of Pirara, scarcely a hut inhabited, the regular paths which traversed the village during the missionary's residence among the Macusís, overgrown with rank grass; no human being visible to greet us with his hearty Tombowai—all replied in the negative.

At Wai-ipukari, I found the bustle of preparations for our journey. The Indians from the Canuku Mountains were all encamped round our tents, to see us once more before we departed. The boatmen were putting the craft in order, and the hoarse voice of the coxswain was evidence of the free use he had made of it during the day. Upon examination of what had been done, and what yet remained to do, it was clear that more than one day

* Since this has been written poor Haining died in Jamaica.

would elapse before we could start on our further ascent of the Rupununi. In order to provide for the multitude, without consuming our salted provisions, hunting parties were immediately despatched in quest of game.

The inlet, on the banks of which we were encamped, abounded in kaimans. On land they are too timid to be dangerous; and the animal is so well aware of the disadvantages under which he labours when on terra-firma, that on the slightest appearance of man he immediately plunges into the water—once there, he is the most dangerous animal in the rivers of Guayana. I was anxious to possess a perfect skeleton of one of these monsters, and accordingly, Naripo, the kaiman-slayer, a fine Macusi, who had settled near Wai-ipukari, was armed with my rifle for the purpose. He promised to do his best to shoot one before we started, and he kept his word, for the following day he arrived with the intelligence that he had succeeded; on hearing which we all started for the sea-like expansion of the Awaricuru, near which Naripo had erected his house, and shot the kaiman. The animal was still in the water, but fastened with a hush-rope, or liana, round the neck to a tree. With the assistance of several Indians, and the greater part of our own men, it was hauled ashore. Life was extinct, and we had nothing to fear, though, when looking at his horrible jaws fringed with teeth, an involuntary shudder almost came over me. Its whole length was 12 feet 3 inches (the largest I have ever seen measured 16 feet; but there may be larger ones); the head was 18 inches long, and the circumference, passing over the eyes, was 20 inches; the girth of the body, where most slender, was 4 feet 5 inches. We placed it in a position which appeared to us the most natural, and our artist took a drawing of it, while Naripo, with no small vanity, related how he had shot it. He went, he said, with his little son, a boy about eight years of age, to the inlet or Kirahagh, and having tied a fowl to a long string, threw it into the water as a bait. The fluttering of the bird in its attempts to escape soon attracted a kaiman to the spot, when it received the contents of the rifle, but apparently with little effect; for though it sank it soon rose again, and made a second rush at the fowl, which had been again thrown into the water. Naripo fired a second time, and little Danappé now loaded his fowling-piece with slugs. The ire of the monster being raised, the dainty bait was withdrawn, and the Macusi merely splashed the water with his foot, holding firmly against a tree on the margin, when the kaiman rushed furiously towards him, and received the shots of both the father and son. Seven discharges were necessary before they proved successful: several slugs had penetrated the skull, and one of the balls had passed through the eye. The drawing finished, the kaiman was hauled on dry ground,

and a kind of cage-work of large sticks built over it, to protect it from the vultures and other carrion-loving animals: this precaution, however, was of no avail, for when Mr. Fryer returned, about a month afterwards, to secure the skeleton, it was not to be found.

I had selected the rainy season for ascending the Rupununi, as at that period I would be able to reach a higher point with our canoes than I could at any other, and the river was now rising rapidly: still were we not ready, and the 3rd of May approached before we could start. At length, the corials being reported ready, we took leave of our Indian friends. In the number were many who had accompanied me on my previous journeys, when I first landed among them, eight years ago: these pressed my hands, a custom with which they had since become acquainted, and gave me their Tombowai, or farewell. We did not start under a good omen, if such superstitions were entertained by any of us. The corial which I occupied, the Louisa, ran foul of a sunken stump on leaving the inlet, and one of her planks was stove in. We could scarcely keep her from sinking before we reached the bank of the river. Our Indians were however alert, and, after an hour's delay, the damage was repaired, and we were once more *en route*.

May 4th.—What a night we had passed!—it appeared as if the flood-gates of heaven had been opened. Anxious to make every progress, it was almost dusk before we began to pitch our tents the previous evening, and we had not got them up when the thunder-storm commenced. All sounds were overpowered by that of the falling rain: even the thunder was scarcely audible, and announced itself only by the vivid flashes of lightning, which, as they shot along, illumined groups of canoemen and Indians, seeking shelter as best they could, and trembling with fright and cold. As for keeping a fire alive, it was out of the question, and our tents were no protection from the rain that fell in torrents. We were much amused by my brother, who, having fallen asleep in spite of the uproar, awoke half dreaming, and as the rain fell in heavy drops upon him, and had already saturated his hammock, fancied the river, on whose banks we were encamped, had so much swollen in the course of the night that its waters already reached our tent, and his efforts to escape a watery grave were really ludicrous. I estimated the quantity of rain which fell that night at from 5 to 6 inches. The thermometer stood this morning at 65° F.,* and the wet-bulb thermometer at 64°.7, a certain indication of the atmosphere being overcharged with moisture.

At half past eight we passed the mouth of the Curutoka, which,

* The temperatures mentioned in the present memoir are throughout those of Fahrenheit's thermometer.—(Ed.)

a few miles higher up, is inhabited by Macusí Indians. This stream meanders partly through savannahs, and has its source in the eastern continuation of the Canuku Mountains.

Two hours afterwards we passed the first rapids, which the Louisa did in fine style; but the large canoe had to be hauled over by main force. At a short distance above the point is the site of the former Protestant mission. While the people were occupied pitching our tents, I strolled up the stream, and again had occasion to admire the beautiful palm, the curua of the Macusís. It appears to be a species of *Maximiliana* (*insignis*?) and, if so, is certainly the handsomest of that interesting family, which, though social in its habits, is only found in regions far asunder. Time had wrought great changes since the mission had been abandoned. Vegetation, in tropical exuberance, had overpowered what man had planted; and the cotton plantations and provision fields, which, under Mr. Youd's direction, afforded so gratifying a prospect, presented now only a few straggling shrubs of a *Eupatorium*, numerous young trumpet trees (*Cecropia*, *Phyllanthus*), and various sedges, which being the first occupants of the soil before man had cultivated it, again sprung up when he relinquished his labour. The missionary's house, and the building in which he was wont to instruct the Indian in the Christian religion and the English language, had fallen in, and added the gloom of their ruined aspect to the forlorn appearance of the once flourishing mission; and yet scarcely three years had elapsed since circumstances had obliged Mr. Youd to withdraw.

Seeing marks of recent footsteps, I followed their direction through clusters of plantain trees, which, in consequence of their rapid growth, had withstood the throng of ranker vegetation, and attested by their height, in some instances from 40 to 50 feet, the fertility of the soil. Indeed the Indians consider those regions where the curua grows, the most fertile of the forest. Of the numerous Indian habitations, which I had seen here on a former occasion, only two miserable huts remained, and the pools of water which were standing in them were sufficient evidence that their roofs were not water-tight. I saw no human beings in them; but some wood shavings, a gun with its lock taken to pieces to be cleaned, and a spindle with cotton, plainly indicated that people had recently been there, and that, alarmed at my approach, they had fled into the wood. I went in search of them, but without success, and when I returned to the huts I found there two women and a man, the former spinning cotton, the latter cleaning the lock of his gun, as though they had never been disturbed, and, evincing no surprise at my appearance, they did not even look up from their work. A few words, spoken to them in their own language, soon inspired confidence; and they told me that hearing

me approach, and knowing by the sound that he who came wore shoes, they had concealed themselves till they had ascertained who it was. I purchased some ground provisions of them, and gave the females some glass beads, after which I returned to the camp.

5th.—The first large fall of the Rupununi, which is a little above the late Mission, was passed without accident, and we continued our journey at half-past eight in the morning.* The river Awaricuru, by means of which, and the small river Quatatta, Pirara is reached within a distance of 2 miles, has a second outlet about a mile above the fall, and 11 miles from the lower (outlet?). Such divisions of a river, although frequent near the coast, are but seldom to be met with in the interior.

Three miles higher up, and on the left bank of the Rupununi, a small channel leads to a lake-like expansion of water, called by the Macusí Indians Watawarai, to which they resort for fishing, as this inlet is well stocked with the finny tribe. We halted at half-past three o'clock in the afternoon, and were then in sight of the Canuku Mountains. Thick opaque clouds enveloped their summits and deepened the dark green tint of the gigantic trees which clothed their sides. Our tents were scarcely pitched when the clouds dissolved and the rain poured down in torrents during the whole night.

6th.—Nothing could exceed the beauty of the morning. The sun rose partially covered by fleecy clouds, as if afraid to contend for the supremacy of the day against the dark hovering masses to the west; but when its rays fell upon the rain-drops on the foliage, the scene was one of fairy land. The majestic *Mora* (*Mora excelsa*), refreshed by the late rains, was covered with a succession of leaves whose tints, varied with their age, passed from yellow through red to dark green; while the splendid *Petrea* with racemes of bright blue flowers, sometimes from 12 to 18 inches long, trailed from bush to tree, and with the orange-coloured *Combreta* gave variety to the surrounding scenery.

We were now surrounded by mountains through which the river had forced its way, and, proceeding onwards, arrived by one o'clock at the small river Aripai, on the right bank of the Rupununi. A settlement of Wapisiana Indians was established at a short distance from its mouth, and as I was in hopes of procuring here a fresh supply of provisions, we halted at that early hour. Immediately on landing I proceeded to the village, which is only half a mile from the river. The yells of the numerous dogs informed the Indians of my approach, and when I came in front of the first huts, I found the inhabitants all assembled. An old

* The rocks which form the fall are of compact basalt.

Indian stepped forward, and greeting me in tolerably good Portuguese, said he was the chieftain of the people I saw before me, and who appeared to be all young men. One by one now came up to me and gave me their hand with a good-natured smile. The chieftain's wife, a tall woman, who, although middle-aged, was still good-looking, also spoke broken Portuguese, and dropping her courtesy, seized my hand and attempted to kiss it, which I prevented.

On entering the hut I was accosted by my name, and a young female, whom I remembered to have seen at Senhora Librada's in 1838, welcomed me. She spoke the language well enough to inform me that, dissatisfied with her employer, she had left her and come to this village; the chieftain's wife, a Paravelhana by birth, being a relation of hers.

I perceived no difference in the construction of the huts of this village from those we had seen at the Macusí settlements. Some of the women were occupied in preparing a Laba (*Cælogenus subniger*, Desm.), which appeared in such excellent order that it tempted my appetite. Three or four men were lounging in their hammocks, each of whom had a large calabash of yellow plums (*Spondias lutea*, L.; Maropi in the Macusí language), which he was so eager in devouring as to have no time even to cast a glance at me. Large heaps of firewood piled up for use in the winter, when the torrents of rain render the wood in the forest unfit for burning, indicated a foresight I had but seldom met with among the Indians.

The old chieftain requested I would accompany him to his provision grounds, which were adjacent to the houses. He showed me the pride of his heart, spots of cassada (*Janipha manihot*), some, as he said, six moons, others four moons in the ground. (The Indians divide the time from rainy season to rainy season into lunar months or moons.) There were his yams, and there his tobacco plants and arborescent cottons of a size that would have astonished a planter from the south of the United States, and attested the fertility of the soil, which was a black mould slightly mixed with sand. The old man could not sufficiently expatiate on the fertility of the soil around his village, in proof of which he pointed to the graceful curua-palm towering high above the adjacent forest-trees. We saw the trunk of a large silk cotton-tree (*Bombax*, *Spec.*), which if it had remained standing in his fields, would no doubt have rendered the ground under it useless, by reason of its wide-spreading branches. It had accordingly been cut down, and the labour of the operation may be judged of when I state that the trunk was 25 feet in circumference.

The forests about Aripai abound in cedar-trees (*Icica* of Aublet), so called from their resemblance in smell and in the

colour of the wood to the real cedar (*Larix cedrus*), though they belong to a quite different family.* This tree often attains a height of from 60 to 70 feet, and canoes made of it are considered more durable than those made of any other wood. It is called by the Wapisiana Indians *camiau*, and by the Macusís *paranguai*. The colonists esteem it much for furniture, particularly for drawers, as its aromatic odour keeps away the insects.

I had scarcely made my way back when the whole village returned my visit. Our baggage was examined with eager curiosity; the sight of the objects we had brought for barter excited great ecstasy, and the promise that all the provisions that could be spared would be immediately brought. I observed here a strange custom among the young girls, and adopted by them perhaps till womanhood; they wore their hair short with the exception of a lock, which hung from the crown of the head down towards the neck.

The following day being Sunday, I resolved on remaining here. The season had set in with uncommon rigour; torrents of rain fell during the night; heavy thunder and frequent showers alternated during the day-time with sunshine and blue sky. The river was rising almost visibly, and the current ran, where the river turned sharply round, with the swiftness of a rapid.

8th.—On awaking this morning I found my hut under water, and might have stepped at once from my hammock into the canoe; but, as we had anticipated this, the baggage had been previously secured. The river had risen $10\frac{1}{2}$ feet in 36 hours, and still continued to rise. Previous to our departure the Indians brought us about 30 cakes of cassada bread, for which they demanded mock-coral glass beads and others of a white colour, the latter being the most esteemed by the Wapisiana ladies; the men requested for their share, knives, hooks, &c. A little girl with very pretty eyes, but by no means an intelligent countenance, particularly when seen in profile, appeared not to possess any provision-fields to enable her to offer cassada bread, but anxious, nevertheless, to possess some of the favourite beads, she brought under her arm a white hen and a number of young chickens in a small basket, which she set down at my feet. I gladly presented her with what she so much desired, and for which, no doubt, she would willingly have sacrificed her pet, which I returned to her with the young brood; an act of gene-

* I consider this tree to be undoubtedly Aublet's *Icica altissima*, though in one respect it differs from his description of that species, as it has from nine to twelve pair of leaflets, while Aublet says it has but from three to four. He describes the white cedar, and speaks of a species which he considers to be merely a variety, and the wood of which, he says, is of a red colour. This latter is probably the red cedar I found at Aripai, but which is decidedly specifically different. It may stand provisionally as *I. Camiau*.

rosity so unexpected that she first looked with astonishment at the beads, then affectionately at the hen and chickens, then with smiles of thankfulness at me.

The following are the meteorological observations at Aripai:—

Period and Number of Observations	Instruments.	Mean.	Maxima.	Minima.	Remarks.
From May 6th to May 7th, 11 Observations	Barometer	Inches. 29.667	7th.—10h A.M. Inches, 29.706	7th, from 4 to 6 P.M. Inches, 29.606	The weather
	Attached Thermom.	77° .72	7th.—12h. 80° .78	7th.—6h. A.M. 72° .14	very changeable
	Detached Thermom.	77.80	81.2	72.50	—fine
	Wet-bulb Thermom.	76.72	7th.—5h. P.M. 79.7*	72.10	in the afternoon.

Having brought the corials to our tents, we steered through the rows of trees; certainly a novel species of navigation. The river was in some places running from 5 to 6 knots an hour. The *Louisa* was a fine boat, and her crew some of the ablest men; still there were places where, with all our advantages, we only advanced inch by inch. The other boats had to be hauled along by means of the branches on the river's banks. Accumulating flakes of white foam came floating down the river, which, at those parts where it was narrowed in by the mountains, almost covered its surface, and gave it the appearance of a northern snow-field. Great was its contrast with the verdure and the many-coloured flowers that adorned the banks, particularly where a beautiful *Combretum aurantiacum* (Nov. Spec.) immersed its drooping spikes into the stream below, so bright its colours that their reflected image was visible even in the muddy waters of the Rupununi. This beautiful shrub, common to almost all the rivers of Guayana, appears to bear a constant succession of flowers, but at this season the banks were covered with them, and, together with the *Petrea macrostachya* (N. Sp.) and the thick garlands of pink flowers of several species of *Bignoniaceæ*, presented a most splendid appearance.

In the early part of the morning the heavens looked gloomy; they presented an expanse of a dull blue tinge with here and there a few interspersed cirro-strati. At 10 o'clock the appearance of the clouds became highly interesting. Thick bulky masses of rain-clouds with a blue sky intervening indicated an approaching storm, and offered a fine subject for a painter. The cry of the toucans, that sure prognostic of rain, told us what we had to expect. It is remarkable that the Buradi or Carauwui

* The detached thermometer stood at the same time 80° .2.

(*Ramphastos Toco*), and other allied species, generally commence their cry on the approach of rain. If, therefore, their disagreeable voices assailed our ears at any other time than in the morning or evening, when we allowed them to set up their cry as in the regular course of things, we generally looked out for our cloaks, or made other preparations to avert the threatened wetting. Our toucans very seldom proved false prophets. Noisy as is the Buradi, it is surpassed by a species of hawk, called by the Macusí, Callau-callau; by the Warraus, Yacka-tata (*Ibycter leucogaster*, Vieill.), a bird of prey which appears to be spread all over Guayana, and which has been honoured by the colonists with the name of bull-dog. It is always found in societies of 10 or 12, occupying the loftiest trees along the banks of the rivers, where they act as warders. Scarcely do they spy a boat in the far distance, when they set up their yacka-tata; a cry which, when the whole company join in the alarm, proves almost stunning.

The prospects on ascending the Rupununi, where it has worn itself a passage through the mountain chain, are by no means uninteresting. In one place the mountains approach the immediate banks of the river, and the stream bathes their feet; in another they surround it like an amphitheatre, or recede at the distance of a mile or two; but nowhere do we find a bold cliff overhanging the water. It seems as if the river followed the windings of the valleys, gliding from mount to mount without abrading any portion of their granitic foundations. Wherever the current has washed away the clayey soil, large rounded blocks of gneiss are visible. At one of those spots where a high mountain turns the river boldly to the east, I enjoyed a most beautiful prospect. Not only the banks of the river, but also the steep side of the hill, were almost covered with trees of that species, so splendid in appearance, which I first discovered at the river Scabunk, a tributary of the Takutu, but where the absence of flowers prevented me from ascertaining its character; here they were in profusion.

Among those plants which bear bracts, that organ is generally situated immediately below the calyx; but in this instance the bract sometimes occupies the common situation, but is more frequently attached to one of the segments of the calyx, a peculiarity common to the genera *Calycophyllum*, *Mussaenda*, and *Pinckneya*. This tree belongs to a new species of the first of these, and is of singular beauty. Its large pink bracts almost clothe the tree in that beautiful colour, and it is only upon a near approach that one can discover the shining green leaves, and the spikes of small flowers of a velvety blue. Let the reader call to mind the splendid aspect afforded by our rose bushes in full blossom,—then let him imagine the great garden of nature in

Guayana, clothed in tropical exuberance, and among the luxuriant productions of a genial sun and fertile soil, trees from 40 to 50-feet high presenting a mass of leaves of the colour of the rose, from the deepest carmine to the faintest blush,—and he may form some idea of the picture I now witnessed. The wood of this beautiful tree is extremely hard, of a yellowish brown, and very bitter; and, I have little doubt, possesses febrifuge properties. The Macusí Indians call it Dehpoyeh. I have already observed that it is a new species, and, according to the custom of botanists frequently to name their own discoveries after the patrons of the science of botany, or other distinguished individuals, I have requested the permission of Lord Stanley—who, during the time the plant was discovered by me, was Secretary of State for the Colonies, and by whose authority the expedition was undertaken—to make this splendid tree known to the botanical world by the name of *Calycophyllum Stanleyanum*.*

There were no palms in the vicinity of the spot where we intended to rest for the night, and, as the sky threatened rain, our Indians had to find a substitute for palm-leaves, with which they usually cover their temporary resting-places. The huts were accordingly covered, first, with the branches of trees, and then with a thick layer of fallen leaves, which at this period strewn the ground several inches thick, and thus rendered impervious to the rain. A pair of those pretty monkeys called marmousets in the colony (the red-handed Tamarin, or *Midas rufimanus* of Geoffroy) gamboled from tree to tree near my tent. I was rather surprised to meet this pretty species of Midas so high up in the interior, as I had always considered its abode to be near the coast region, where it occasionally visits the plantain-walks † in such numbers, to feed upon the ripe fruit, that it commits great injury. These monkeys are easily caught in traps, but seldom survive their confinement above a few months.

9th.—It appeared the river had reached its maximum height yesterday, as from 2 o'clock in the afternoon of that day to 6 o'clock this morning it fell upwards of 5 feet. We found the large boat (42 feet in length) resting with the stern in the fork of a tree and the bow on dry land; certainly the fault of her coxswain, who had comfortably taken his rest under her awning while the water was running rapidly off beneath her bottom. It required the whole strength of our crew to get the boat out of this unwonted situation.

We entered, at about 11 o'clock, between two large rocks, that

* The description of this beautiful plant was first read at the meeting of the British Association at York, and has since been published in Sir William Jackson Hooker's 'London Botanical Journal,' vol. iii.

† A plantain-walk is a piece of ground allotted for the cultivation of the *Musa parudisiaca* and *Musa sapientum*, or the plantain and banana of the tropics.

part of the river where, on ascending, a continuation of rapids and cataracts commences, forming obstacles to further progress; but the lovely prospect from this point made me forget the dangers and difficulties that were to be surmounted. These natural portals of gneiss form a conspicuous feature in the view. On the river's right, and from its very brink, the savannahs stretched away; towards the S.W. rose high mountains; while the Peak Burukutuau-yari, with its granitic cliffs, formed the background of the picture. The whole landscape appeared "couleur de rose." The splendid *Calycophyllum Stanleyanum* gave a marked and peculiar character to the prospect.

We, in the Louisa, halted before noon near Mount Burukutuau-yari; the other boats did not arrive until past 2 in the afternoon. In the meanwhile I walked with Sororeng, one of the Indians who accompanied me to London in 1839, and who since 1837 had served me as interpreter, to a village of Wapisiana Indians, which was called Kuiaaton. It is situated about a mile from the river, on its right bank. Here it was that, in January 1838, on my return from the sources of the Essequibo, I was detained for a fortnight waiting the arrival of one of my boats, in order to join our party at the lower Rupununi. I found on my arrival that no other craft was to be had but a small corial, just large enough to hold two persons. I was therefore obliged to send the coxswain and an Indian to Curassawaka, at the lower Rupununi, to bring up one of the boats of the expedition. The interval of 14 days is indelibly impressed upon my memory from the excruciating pains of tic-doloureux and neuralgia which I suffered, in consequence of exposure during our journey to the sources of the Essequibo.

The huts had been removed, and of the five dwellings which composed the settlement in 1838, only three were standing. The greater part of the inhabitants, and among them their chieftain, were absent in the provision-fields, and I found only two men and a few women at the place. One of the latter appeared to have just recovered from small-pox, and another was still suffering under that baneful disease. I learned, to my great regret, that many of the inhabitants had fallen victims to the malady, which had been introduced in 1842 from the colony.

I left a message for the chieftain to come and see me on his return, and, as there still remained a few hours of daylight after my arrival at the camp, I measured the height of the Peak Burukutuau, and found it to be near 2076 feet above the savannah.* A set of altitudes of the sun, W. of the meridian, gave me the chronometric difference of our camp 1 mile W. of

* Bunten's barometer indicated the height of our camp on the savannah to be 407 feet above the sea; the summit of Burukutuau would therefore be 2483 feet above the level of the sea.

Pirara (59° 21' W. of Greenwich). On a former occasion I had ascertained the latitude of Kuiaraton to be 3° 1' 40" N., which would give for the peak 3° 1' N. While we were still occupied with our measurements, the chieftain of Kuiaraton made his appearance, but, merely waving his hands, he passed on to the camp, where I afterwards joined him. He was a stranger to me; a fine-looking man, and rather tall in stature for an Indian. He bore himself quite upright, and a piece of cotton cloth, thrown over his shoulder in form of a toga, added to the dignity of his mien. One of his followers was entirely painted over with Lana,* with the exception of the face, which was painted with Roucou,† so that the nether parts of his figure presented the appearance of a negro, with which the red colour of the face formed a most ridiculous contrast.

As our journey over land was to commence at Watu Ticaba, I was anxious to send a messenger there to desire of the chieftain that a quantity of cassada bread might be prepared for us, the more particularly as our friends in Watu Ticaba possessed well-stocked provision-grounds, while in and near Kuiaraton they appeared to endure great privations. I was also desirous of procuring a guide, as I was perfectly unacquainted with the Rupununi above Kuiaraton. I succeeded in both objects. Our new pilot was a young man who had been for a short time with Mr. Youd, before that zealous missionary had been obliged to withdraw from Pirara and Curua.

10th.—The thermometer stood this morning at 6 o'clock at 82°.3; the wet-bulb thermometer 79°; the difference, amounting to 3°.3, proved that there was less moisture in the air than on the preceding day.

Previous to our departure we received the visit of upwards of forty Indians of both sexes and of all ages; they were conducted by their chieftain, and looked with much curiosity at our baggage.

Among the visitors was an old woman, whom I immediately recognized from having seen her on my former visit in 1838, when her appearance was so shocking that I then compared her to a living skeleton, and thought she could not have survived the next month. My astonishment was therefore great indeed, at seeing her among the other visitors, and still strong enough to walk the distance of a mile for the purpose of satisfying her curiosity. Her appearance was rendered more pitiful by numerous white spots of different sizes which covered her body. These patches occupied chiefly the abdominal region, but there were

* A black pigment, prepared from the fruit of the *Genipa Americana* and *G. caruto*.

† The Roucou is prepared from the red pulp which covers the seed of the *Bixa Orellana*.

also some on the face, extending over the chin and under the jaw towards the neck. They were scaly, and, no doubt, the consequence of disease of the cuticle. This ghastly object was strongly contrasted by the appearance at her side of a young mother with her firstborn, an infant of 14 days old, and on which she lavished her caresses.

We fired our small cannon and cohorns before we started, to the great delight of our Indian friends. The reverberation of the sound from the near Burukutuau-yari and the distant mountains, at first loud, then dying away into an almost inaudible murmur, produced a sublime impression.

Our toil now commenced; rapid followed upon rapid, and, as we had but inexperienced hands for our crew, our ascent was not without danger. We passed, in the course of the day, the Curnayair, or Crooked Falls; the Ruru-ruru, the Tremetre, Trekutara-tepau, and several other falls. The hills Matziendaua form, apparently, on the left bank of the Rupununi, the south-eastern extremity of the Canuku chain. At their foot flows the small river Ménérúau. They extend N.N.W., and are connected with the high mountains Awarre-tequi and Burukutuau. Opposite Matziendaua the river Catuau-uru joins the Rupununi on its right. This river has its source in the savannahs S.E. of the Tarucupani, which forms the southern angle of the Canuku chain. Burukutuau bears from its mouth N. 27° E.

It was late in the evening before we had overcome the difficulty of ascending the fall Paratawai; and, as we had to encamp on the open savannahs, without even a copse of bushes for shelter, we earnestly hoped that the night might pass without a storm. Our Indians proceeded with their hammocks to the Matziendaua Mountains, which were thickly wooded at their foot.

11th.—The heavy work at the falls and rapids, the frequent rains and short provisions, combined to indispose our followers to accompany us further. On calling over the list, in order to share out allowances, we found that four Macusís had decamped during the night. If I except one of their number, who had appeared, at least, to be well disposed to give his assistance, the other three had proved themselves the laziest and most indolent of our crew, so that, had it not been for the bad example, and the fear that others might follow, I would have cared little for their desertion. I therefore addressed those who remained in their own fashion, and told them, that if any one was desirous to leave he might do so at once, but that he should not deceive me by stealing away in the night, like a thief or night-murderer (*kanaima*). Not one came forward to avail himself of the permission, and we continued our course with reduced strength.

During the dry season the river must be almost overgrown with guava bushes (*Psidium aquaticum*, Benth). At this time,

with their tops above the water, they assisted us in hauling the canoes over small rapids; besides which they break the swiftness of the current, and their flexible branches allowed the boats to pass over them.

Shortly after eight o'clock we arrived at Paruauku, the portage mentioned by Horstman, Santos, and others; and by means of which the Suwaru-auru is reached in the rainy season. It is a low savannah, stretching W.S.W. towards the Saeraeri mountains, on the eastern side of which (not the western, as I had been erroneously informed) flows the Suwaru-auru. The eastern peak of the Saeraeri mountains bears from hence S. 73° W., distant about ten or twelve miles; the highest point of the Cursatu mountains S. 65° W., and Burukutuau, which we had left the previous day, N. 20° E.; its distance being merely 5 miles. There are several isolated hills in the neighbourhood of this ancient portage, which has been known for the last hundred years, it being in April, 1740, that Horstman traversed it—no doubt the first European that ever set his foot in these regions.* Santos followed in 1775, and Barata in 1793. I gazed with interest on the ancient trees that fringe the river near the embarkation. Perhaps Horstman had encamped here, dreaming of the rich treasures which he fancied were buried in the mountains he saw towards the N., and little suspecting the difficulties which the transport of his boat across the savannahs would cause him and his crew on the following morning.

Some small hills approach the Rupununi a little above the portage, and on the left bank are some hillocks which the Wapisianas call Mawunna-meketsiba, the translation of which is eye-hills. I could not ascertain why they were so named, nor could I myself see any reason for the appellation.

At about 1 o'clock we were opposite the most southern point of the Canuku mountains, which our Indians called Tarucupani. The small river Witzapai joins the Rupununi on its right; and above the junction is a rapid, which, insignificant as it appeared, gave us a great deal of trouble to ascend. A small cluster of trees which we approached after 3 o'clock in the afternoon, was too inviting for us to pass them without pitching our camp under their protecting branches. Trees are so scarce in these savannahs, that we were obliged to carry the poles for our temporary huts with us in our canoes.

12th.—It was fortunate we had yesterday halted in a spot somewhat sheltered, for a thunderstorm came on with hurricane-like fury, that would doubtless have swept away our tents, had they been pitched in the open savannah. Our crew had some

* See Humboldt's 'Personal Narrative,' vol. v. p. 594.

difficulty in securing the canoes from injury, while others were constantly employed during the rain in baling out the water. The thermometer stood in the morning at 70°, and the wet-bulb thermometer showed only a difference of half a degree.

The Rupununi, which the Indians call Camoyepaugh, or Sun River, has not much diminished in breadth. From the entrance among the mountains to the savannahs, it has varied only between 250 and 300 feet. The splendid *Calycophyllum Stanleyanum*, which imparted so peculiar a character to the landscape, has now vanished from the banks of the river, and is replaced by the scarlet Elizabetha (*Elizabetha coccinea*). It was bearing numerous seeds; and the velvety appearance of the seed-pod, of a rich crimson, was not without its attractions, more particularly since the late rains had called forth the budding leaves, whose white colour contrasted strongly with the crimson legumen.

There are very few among the genera of tropical trees which, like the beautiful Elizabetha, put forth leaf-buds enveloped with teguments resembling those of Liriodendron, and covered with a viscous juice. The scales of a hard texture drop off, when the delicate pinnated leaf (of a whitish colour when it first bursts) appears partially folded up: it expands in the course of a few hours, but too weak to sustain its own weight until irrigated, when it assumes the position of the older leaves. The light by degrees colours it green; but the various shades of the leaf during its transition from white to green, together with the crimson seed-pods, give the tree a remarkable appearance. It is probable that the dry weather which precedes the tropical rains, may operate in a manner analogous to that of the winter of the northern hemisphere on our deciduous trees, in rendering torpid the vegetative powers; but it is remarkable that its effect should be limited to so few genera, which, like the Elizabetha, produce leaf-buds; nor is that tree at any time entirely deprived of its foliage. While the delicate white leaves make their appearance, others of a yellowish green, and the old perfectly-formed foliage of a dark green colour, cover the tree. I know only of a few trees, and among these a Bignoniaceæ, a species of *Erythrina* (*E. corallodendron*), and the *Spondias Cironella* of Tussac, which shed their leaves entirely; but even then, these genera are covered with flowers; indeed the Bignoniaceous plant was so clothed with bright yellow blossoms that the trees appeared at a distance like yellow hillocks.

Our crew spied out with much pleasure a quantity of guanas on the branches of the trees which girded the river—a delicacy highly prized by the Indians, and not despised by us Europeans. Many of the females had eggs, of which there are frequently from eighteen to twenty-four in the ovarium, perfectly formed, and

somewhat larger than the egg of the domestic pigeon. I confess I am semi-savage enough to find them very delicious.

We halted above a rapid near the mouth of the river Kamai-kariba at half-past 2 o'clock. The large canoe, though manned with fifteen paddles, hove in sight only towards 6 o'clock in the evening. I watched them coming up the rapid. When the impediment was nearly overcome, they attempted to cross the stream diagonally by force of paddling—a feat which we in the Louisa, with six paddles, had performed successfully; but the coxswain and boatswain not acting in concert, the strong current seized the boat and hurried her broadside down the rapid, to the great consternation of the crew: the next moment she was driven against a rock. The greater part of the people jumped overboard, and swam to the bank. The boat balanced for a moment, but our interpreter, Sororeng, and some of our Indians, by timely assistance, prevented her from upsetting. Mr. Goodall and Mr. Fryer, who were under the tent of the boat, were described to me as having turned rather pale, while I freely confess that, though witnessing the accident from the shore, I felt the greatest uneasiness. As it was, the boat had shipped a great deal of water, and had to be brought in shore with all dispatch to prevent her from sinking. My brother in the mean time had been enjoying himself hunting an ant-eater (*Myrmecophaga jubata*), which he and the Indians had espied drinking at the river's bank, and, jumping ashore, had chased along the savannah. It was unfortunately a female; I have never had the good fortune to see a male of this remarkable animal, although in the course of my journeys in Guayana more than twelve females were procured.

13th.—It had rained nearly the whole night and till after 8 o'clock this morning. While they were loading the canoes I ascended a small elevation, and, looking south-westward, saw the flood at the distance of a mile or two come rushing over the savannahs. I returned with all dispatch to hasten the loading of our canoes. The river had swollen considerably in the course of the night, and had invaded the camp of the Indians.

The great cataract of the Rupununi, the Cutatarua, or Truan, of the Wapisianas, the Corona* of the Carabisi, was before us. We had heard the noise of its falling waters during the past night, but as the river had gradually risen, we found it much less dangerous than we had anticipated, and passed it without much difficulty. We had to unload nevertheless; and as there was a little sunshine after the dismal night, we profited by it and the large granite ledges to dry our baggage. The river near the cataract

* The words Truan, in the Wapisiana, and Corona, in the Carabisi, signify respectively "the fall" *par excellence*, there being no larger one, nor any like it in the Rupununi.

was about eight feet higher than when I saw it in 1835 ; but the trunk of a large tree that was lying on the highest rock of the fall, and which had been carried there by the flood on some former occasion, proved that it had yet to rise from 14 to 15 feet before it reached its maximum height.*

We started from the upper cataract at 1 o'clock ; but our progress was very slow, in consequence of the swiftness and strength of the current. The river Purunaru joins from the S.S.W. on the river's left bank, a small stream when I visited it in 1835, but now nearly as large as the Rupununi itself. Opposite the junction the river Waipopo also comes in.

I halted at 3 o'clock at the fall Saracta, and dispatched my coxswain and some able hands to assist the other boats, which did not arrive until 6 o'clock. Large blocks of granite, near which we encamped, afforded an extensive view ; and I ascended to their summit to witness the sunset, a spectacle so rare during the rainy season. The fiery orb surrounded by golden clouds was sinking behind the Cursatu mountains, whose bases were enveloped in mist, while their summits were gilded with the sun's parting beams. The eastern peak of Saeraeri rose above a sea of vapours ; and the remarkable mountain Dochlopan, out of the reach of the sun's rays, stood like a sombre rock in the ocean. To the N. black clouds piled upon each other, and capped by the highest pinnacles of the mountain masses, spoke of the storm that was raging there, and contrasted finely with the calm and placid picture in the W. At the same time the moon, then at its full, rose in the E., and of an apparent size of which we in Europe can have no idea. So true it is that in the tropical regions of the western hemisphere not only the earth and its productions, but also the heavens and their phenomena, differ essentially from what we have been accustomed to from our childhood.

14th.—The river had continued to rise during the night, and we were now able to row over the savannahs in a straight direction, avoiding the serpentine course of the river and its increased current. The expanse of waters resembled an extensive lake. The snow-white egret (*Ardea Egretta*) in great numbers, the American stork (*Ciconia Americana*), the stately jabiru (*Mycteria Americana*), cormorants (*Carbo Brasiliensis*), and large flocks of the spurwing plover (*Charadrius Cayanus*), enlivened the surface above, while the tops of trees, granite blocks clothed in tropical vegetation, and here and there a small spot of elevated ground, alone remained visible. We saw the savannah

* On the return of Mr. Fryer and my brother, about ten days afterwards, the trunk had been carried away—a proof that the water had risen above the rock. This will serve to give some idea of the extent to which the flat savannahs which border the river are inundated.

deer, hemmed in by the water on one of these small spots. They cast an anxious look at our approaching boats, then turned round to ascertain if there were no means of escape, hesitating to take the water, and stamping impatiently with their fore feet. The buck at length plunged into the water, but the doe resorted to a ruse—it doubled down in the grass. Two Indians noiselessly left my canoe; and, swimming with one hand, while with the other they held their loaded guns above their heads, approached the island. Arrived there, they stole gently towards the spot where the deer lay hid. The easterly wind informed the crouching animal of the approaching danger—for, though the sight of the savannah deer is dull, its scent is remarkably sharp—it suddenly rose, pricked up its ears, looked for awhile steadily in the direction whence the scent came, and then endeavoured to escape; but the Wapisiana had already fired with unerring aim; the poor deer sprang twice into the air, and fell lifeless on the ground, shot through the head.

Whenever the water on the savannah became too shallow for us, we were under the necessity of regaining the river, which we had some difficulty in doing, having to cut our way with cutlasses and axes through the thickets that fringed the stream. Myriads of ants, driven by the waters from the savannah, had taken refuge on the bushes and trees; and these now assailed us on all sides, and inflicted merciless bites and stings. That species which, like the bee and wasp, is provided with a sting, is fortunately scarce; for the pain which they cause surpasses in violence either that of the bee or wasp.

I have already observed that, on leaving the Wapisiana village, I dispatched a messenger overland to Watu Ticaba, to inform the Indians of our approach, and to desire them to bring a supply of bread to the mouth of the river Waruwau or Awarra. We were now approaching that stream; and discovered on some high ground, which rose above the surrounding savannahs, several human beings and two or three temporary huts. At some distance from this group stood an individual, apparently dressed according to the European fashion, and holding an umbrella over his head. My glass proved that I was correct; the distance did not allow me to discover the colour of his face; but I saw that he wore upon his head something like a military cap—that his loins were girded by a belt—that his bearing was upright—and that he stood apart from the rest, who remained at a respectful distance. My curiosity was much excited as to who this mysterious personage might be; but, as soon as the canoe touched the ground, this strange personage, shutting up his umbrella, and walking directly up to us, announced himself as the captain or chief-tain of Watu Ticaba. The rules of etiquette were of no avail,

and, unable to contain myself, I burst out into a loud laugh at the wonderful metamorphosis of my Indian friend. Imagine, reader, a thin-boned being; his face adorned with an eagle nose and an uncommon large mouth, clad in a pair of sailor's trousers which had once been white, reaching to his ankles, and fitting him à la *Oliver Twist*; and having round his loins a piece of blue cotton cloth, from which depended a naked sword (in which, by the bye, I recognised an old acquaintance); his head covered with a red woollen cap ornamented with a large yellow tassel; and carrying in his hand a blue cotton umbrella (upon which he seemed greatly to pride himself); and you may perhaps form some idea of Captain Wayapari in his full dress. He had inherited the sword from his brother, Captain Siruai, of Eischalli, who bore it with him as a faithful companion when he guided us in 1837 to the sources of the Essequibo. Poor Siruai, I was sorry to learn, had paid the debt of nature; and thus it was that the sheathless sword had descended to his brother Wayapari. As for the umbrella, we learned that Wayapari, journeying lately by means of the portage at Primoss to the Corentyne, had observed that article in the possession of one of the woodcutters at the lower part of the river, and had become so enamoured of it that he procured it at any price. Since it had been in his possession the handle had been broken, but his ingenuity had substituted in its place the forked branch of a tree. His followers were robust and well-made men of the Wapisiana tribe; they had brought down some baskets of bread and several bunches of plantains, which greatly delighted our crew, who had for the last two days been upon short allowance.

Our tents were soon pitched, and protected against approaching rain; fires now blazed in all directions, surrounded by groups of swarthy Indians, warming themselves, or cooking their plantains on the coals.

We had for some days past suffered from a minute sand-fly (*Simulia spec. ?*), which from sunset till sunrise inflicted upon us acute bites, that left marks of a scarlet hue for several days after. I was quite unacquainted with this nocturnal species, as the sand-flies we had hitherto met with had proved troublesome only during the daytime, and vanished at dusk, nor was their bite so piercing as that of the nocturnal species. They were this night so numerous that they compelled us to discontinue our astronomical observations. The size of this little insect scarcely exceeds that of a small pin; and as it attacks not only the face and hands, but gets into the hair and inflicts its bites upon the scalp, we suffered from it more than I can describe.

The meteorological observations at the mouth of the Waruwau (432 feet above the sea) were as follows:—

Date.	Hour.	Barometer.	Thermometer.			Remarks.
			Attached.	Detached.	Wet-bulb.	
May 14th	P. M. 4 30	Inches. 29.575	86°	86°.4	79°	The weather fine, but partially clouded. At 6 p.m. a shower passed over.
„	5 0	29.570	86° 90	87° 6	80°	
„	6 0	29.571	77°	77°	75°	
„	6 30	29.590	77°	77°	75°	
„	7 15	29.602	76° 82	77°	75° 2	

15th.—We recommenced the ascent of the small river Waruwau, which was running with uncommon velocity; and as its course was much impeded by trees, we had to overcome some difficulties before we reached the spot from whence the path leads to Watu Ticaba. Arrived there, our boats were unloaded, and the baggage divided into convenient portions for being carried overland.

16th.—I had given orders for starting early in the morning, but the rain descended in torrents, and it was nearly noon before it abated sufficiently to allow us to proceed on our journey. Several Indians had arrived to assist us; and Wayapari, dressed in his gala suit, with his umbrella over his head, led the van. We had not proceeded far when a heavy shower overtook us; Wayapari disrobed himself, and, shutting up the umbrella, stood the shower with Indian fortitude. We had sometimes to wade up to our arms through the water, and every rill had become a torrent. Indeed, if it had not been for the chieftain, who walked before us and searched for the shallowest places to ford the torrent, we might have met with serious accidents. As it was, an Indian boy nearly lost his life while crossing one of the streams just above a cataract. He carried a basket, which he had slung round his neck to prevent the contents getting wet. The torrent swept him away towards the cataract; he sunk, and not being able to rid himself of his burthen, could not stem the current, and was given up for lost, when his brother, who at that moment arrived, jumped into the water, and, fortunately seizing him, dragged him half dead to the shore. Well aware that I could not swim, I grasped with all my strength the pole which assisted me in wading, and I kept as close as possible to Wayapari.

Our march was fatiguing in the extreme: the sun was rapidly approaching the horizon, and as yet nothing was to be seen of Watu Ticaba. The party to which I belonged had been marching and wading for the last six hours without resting; we were all very tired, and indeed the Indians dropped off one by one and loitered behind. We were now ascending some rising ground,

when our guide halted, and raising his umbrella, which he had shut up and carried under his arm during shower and sunshine, his young son commenced blowing a strain upon a fife or flute made of bone—a certain indication that we were near a village. I now observed five huts, and a great stir among the inhabitants. The sound of another whistle reached us from the village, and a ghastly figure of a negro, perfectly naked except the waistcloth, came out of one of the huts and met Wayapari, whom he respectfully saluted, and then placed himself behind him, taking no notice of us, or of any other person of our suite. Thus we entered Watu Ticaba, the locality of which had been changed since I was here in 1837. The former chieftain of the village having died, they had buried him, according to their custom, in his hut, burnt down their dwellings, and established themselves further to the S.E.

The stranger's house (the tapoi of the Macusís) had been put in order for our reception, and that portion of our luggage which had arrived before us was placed upon large beams to prevent it coming in contact with the moist ground. The chieftain now bade us welcome, and the influential men followed his example, while the women and children remained at a respectful distance. I counted fifty-eight individuals of all ages and of both sexes. They did not differ from the Wapisianas we had met on our journey to the sources of the Takutu. We had now full leisure to examine the strange figure of the old negro who came to meet Captain Wayapari on our arrival. His gaunt figure, which appeared all the more meagre and ghastly for being clad only in nature's garb—his close, woolly hair, bleached by age—his ears standing out immeasurably from his head—altogether gave him, when he began to caper and dance for the amusement of others, the appearance of a lascivious satyr in the train of Bacchus. His history, which he told me in sufficiently intelligible Portuguese, was as follows:—He had escaped from the Rio Negro, and after having been for some time among the Wapisianas, he married one of their females, by whom he had a son. This individual, whom we saw the next day, and who was called Wannéhré, might have been about 25 years of age; he had all the striking peculiarities of the negro, being merely in colour somewhat lighter than his father, but in all other respects the negro characteristics were strongly marked, and indicated that in him the father's blood predominated. He had married a Wapisiana woman, by whom he had two fine-looking boys; their hair and countenance generally resembled those of the Indians—though the hair, in one of them, was not quite straight, but might be called wavy, like that of the Teutonic race, and was of rather a dark colour. Their skin was somewhat darker than that of the generality of the Wapi-

sianas. Bastin, the elder, might have been eight years old, and his looks were very intelligent. His forehead was rather arched; and though his lips were by no means curled up, as in the negro, still it might be observed that they were somewhat thicker than those of other children of his age of pure Wapisiana descent.*

I had resolved to send Mr. Fryer back to Demerara with the boats and such of our instruments and baggage as were not indispensable, because we had before us an arduous undertaking, which rendered it impossible to carry any superfluous baggage with us. My brother had likewise resolved to return with his collections to the coast, as the journey overland through pathless regions could add nothing to them, and was likely to endanger what he had already collected. I had ascertained that the provision-grounds at Watu Ticaba were amply stocked with cassada, and Wayapari promised to provide us with plenty, and to inform the other Indians of the neighbouring villages of our wish. The inundation and swollen state of the rivers restricted

* In order to enable the reader to compare the offspring of a negro man and an Indian woman, with an Indian of pure descent, I subjoin the measurement of Wannéhré and of Akarighur, the latter an Atorai of nearly the same age with the former.

	Akarighur, an Atorai.	Wannéhré, a Cobb of mixed blood.	Bastin, the Son of the latter.
Estimated age	20 years	25 years	8 years
Common stature	5 ft. 8 $\frac{1}{4}$ inches	5 ft. 8 inches	4 ft. 0 in. 1 tenth
	ft. inc. tenths	ft. inc. tenths	ft. inc. tenths
Circumference of the head round the forehead and above the ears }	1 10 3	1 10 0	1 8 1
Long diameter, from the occiput to the chin }	0 10 1	0 10 0	0 9 6
Length of nose	0 2 2	0 2 0	0 1 5
Breadth of nostrils	0 1 7	0 1 9	0 1 2
Circumference of the neck . .	1 1 6	1 2 3	0 10 1
Length from the point of the shoulder to the tip of the mid- dle finger }	2 6 0	2 6 1	1 9 0
Length of the humerus	1 2 0	1 2 0	0 9 7
Length of ulna	0 11 3	0 11 5	0 7 5
Circumference of upper part of arm }	0 11 1	0 11 0	
Ditto at the wrist	0 6 4	0 6 2	
Length from the division of the thighs to the sole of the foot . }	3 4 0	3 3 5	2 2 1
Length of the foot	0 10 0	0 10 3	0 7 5
Breadth of ditto	0 4 0	0 4 0	0 2 2
Breadth across the shoulder . .	1 5 0	1 6 0	0 11 0
Circumference at the same part .	3 1 3	3 5 0	
Ditto of the pelvis	2 7 5	2 5 1	
Height of vertebral column . .	1 9 0	1 9 0	1 1 2
Circumference of the upper thigh	1 8 0	1 8 7	
Ditto of the calf	1 2 0	1 5 0	

his communicating with the surrounding villages. Watu Ticaba was comparatively on elevated ground, and the intercourse with the western or left bank of the Rupununi broken up.

17th.—The whole female population of the village was in motion fetching the cassada roots, scraping them, and making them into cakes; even the little girls assisted, and assumed as much importance upon the occasion as if the weal of the whole village depended upon their occupation. Among the females was one who deserves to be mentioned as the belle of the Wapisiana tribe. Although Mayori-Eppong was mother of a fine girl, her youthful appearance did not bespeak it. Her figure was very small, her height being only $4\frac{1}{2}$ feet, but so symmetrical that she might have served for a model; the greatest breadth of her hand was 2 inches and 8 tenths. The Wapisianas marry very early. Mayori-Eppong did not appear above fifteen years of age; and in the neighbouring house there was a young mother with two children, the eldest perhaps two years, the youngest four or five months old, while she herself did not appear more than fourteen. During our stay in the village, I had frequent opportunities of admiring the equanimity and the industry with which, so young, she attended to her maternal duties and the comforts of her husband.

The females puncture and stain the skin round the mouth in an elliptical form. This practice, although occasionally followed by other tribes, is much more general among the Wapisianas. These figures are punctured in the cutis without affecting the cuticle; but their grand art consists in painting with pigment, a practice common to all the tribes of Guayana.

I had an opportunity while here of seeing two females of the mixed race. Their father, a negro, also from the Rio Negro, joined the Wapisianas about 40 years since; in his language and manners he was far superior to the other black man, and his dress, though plain, was clean and neat. When he paid me his first visit he even sported a white pocket-handkerchief. I recollected having seen him some years since at Pirara. He was now accompanied by his two daughters, the issue of his intermarriage with a Wapisiana female, the one a grown up woman, the other a little girl eight years of age; in both, the characteristic features of the father prevailed. I had seen the elder with her father in Pirara; she was then stout, and apparently in excellent health; now she was thin and looked sickly. The father told me, when I asked the cause of this change, that when she accompanied him four years since on his visit to Pirara, she possessed a great many glass beads, which she ostentatiously wore round her person. This treasure, in the eye of the Indians, was coveted by a Macusi, but, reluctant to part with it, she refused to give it away; on which, said the old man, the Macusi, in revenge, administered

poison to her. It is not likely, however, that this was the true cause of her indisposition; but as the disease commenced soon after her return from Pirara, and the Macusís are held in the worst odour as slow-poisoners, or kanaimas, among the Wapisianas, every evil, from the aching of a tooth to the most serious disease, is ascribed to their malignity.

20th.—Early this morning the number of inhabitants was increased by a young stranger. We had seen the mother walking about only a short time previously with her first child, about 18 months old, in her arms, and scarcely 15 minutes afterwards she delivered herself, without any assistance, and was now sitting on the ground with the child in her lap, while her husband was occupied in constructing a small hut of palm-leaves over her head, inside the large hut. The other women did not come near her; a female, after labour, being considered by the Indians as the Jews looked upon them when in that state. A fire having been lighted, and some calabashes, filled with water, put within her reach, she was left to herself and the care of her husband, who kept his hammock almost the whole time from the period the little hut, which was to separate her from the community, was finished. The child was rather small, but nearly as white as a European; the hair on its head rather thick, the face round, and though the nose had not the flatness of the Mongolian race, and was more distinctly formed and projecting, it was uncommonly thick towards the nostrils, the openings directly downwards; the hands and feet were very small, the nails well formed. I presented some cotton-cloth for covering the new-born child, and some glass beads for its future adornment, with which the young mother seemed much pleased.

21st.—Mr. Fryer and my brother left us this morning; we felt the parting. The journeys of both parties had dangers in prospect: they had to descend many a difficult cataract before they could reach the coast-regions; and Mr. Goodall and myself to direct our course towards regions perfectly unknown.

This day the quietness of the village was disturbed. One of the Wapisianas thought he observed during the night, while stepping out of his hut, a Kanaima, or night-murderer, stealing towards the village, who, on seeing him, made his escape across the savannah. This betokened harm to one of the inhabitants of the village, as the Kanaima will execute his revenge (for the perpetration of which he stole near the village) at an earlier or later period.

22nd.—The husband of the young woman who was delivered the other day continued to occupy his hammock; for, according to their superstitious belief, any labour which he might perform at this particular period would have an injurious effect upon the

child; his diet is much restricted for similar reasons. If he were to eat meat or plantains, it would prove hurtful, not to the eater, but apparently, by sympathetic influence, to the child.

The Vaqueiro, or herdsman, I first saw at St. Joachim, in 1838, and met afterwards near the Taurutu Mountains, paid me a visit to-day. He had settled in the neighbourhood of Watu Ticaba, in consequence of some dispute with one of the Macusi Indians, at his former residence. I found him meek in appearance and quite dejected, and soon learned that he considered the Macusi, with whom he had the dispute, had injured him by secret charms and poison.

I was rather astonished when I saw he refused to take the refreshment from me which I offered him, and give as his reason, that his wife having lately borne him a child, it would injure the health of the baby if he were to eat or drink anything presented by a white man.

It has frequently been observed with what stoicism Indians endure pain. I had an opportunity of observing it again to-day. I do not know how I have acquired the honour, but I stand in high repute among the Indians as a great physician. A boy upon whose head a palm-tree had fallen, was brought to me to have his wound dressed. It appeared he had lost a great deal of blood, and it was still flowing. I had the head shaved round the part injured and styptics applied, during which operation he did not give the slightest indication of the pain he must have suffered. He was not more than seven years of age, and in appearance rather a weakly child, which made his fortitude the more remarkable.

24th.—This day did not pass without a bottle of champagne being drank to her Majesty's health. It had been reserved for this purpose, and our numerous followers partook in some measure of the festivities. The bottle, whose contents we emptied to the health and prosperity of Britain's Queen, we buried, with an account of when and why it was emptied of its sparkling beverage, at the spot where the flag-staff now stands, on which, on this occasion, the union-jack was hoisted. Will civilization ever extend to the poor benighted beings who now surround us, so as to render it likely, after the present generation shall have passed away, that the plough or the hoe may bring it again to light? The hope is but slender, and, reluctant as I am to despair, the conviction is forced upon me that the Indian race is doomed to extermination. Six years have scarcely passed away since I wandered to this spot on visiting the sources of the Essequibo. We left the settlement Eischalli Tuna, and passed on our route to the Taruma Indians, three villages of Atorais or Atorayas, and one of Taurais, the latter containing the remnant of that sister tribe of the Atorai nation. The villages have vanished, death has all but

extirpated the former inhabitants, and I am informed that of the true Atorais only seven individuals are alive. From the accounts I received in 1837, I estimated the number of Atorais and Taurais at 200, including the descendants of mixed marriages, and of that number about 60 are now left.

The measles, so fatal to the Indians, has twice decimated the Atorais; and at the commencement of the present year, the small-pox, brought from the colony to Pirara, ravaged from thence southward so far as these poor people. Their belief in the secret influence of the Kanaima, who has only to breathe upon his victim in anger to send him to an untimely grave, operates as banefully as that species of witchcraft called Obeah practised among the negroes, which, acting upon their superstitious fears, is frequently attended with disease and death. Nor is it the Atorais and the Taurais alone, whose rapid extinction is thus going forward; similar causes are operating over the whole Indian population of the colony. The village of Wapisiana Indians called Eischalli Tuna, from which I started in 1837, is no longer in existence, and of its then inhabitants only one female and three children are now living. Many of my former acquaintances among the Taruma Indians are now buried, and I have already alluded to the rapid decrease of the Macusís. But the most affecting picture that now presented itself among the many Indians assembled around us was Miahá, the last remnant of the once powerful tribe of Amaripas. Singled out by destiny to be the sole survivor of a nation, she wanders among the living. Parents, brothers, sisters, husband, children, friends, and acquaintances are all gone down to the silent grave; she alone still lingering as the last memorial of her tribe, soon to be numbered, judging by her faltering voice and tottering steps, with those of whom tradition alone will record that such a tribe existed. Alas! a similar fate awaits other tribes; they will disappear from those parts of the earth on which Makunaima, the good spirit, placed them,* and which, since the arrival of the European, has become the vast cemetery of the original races.

Miahá appears to be about 60 years of age; her hair, however, is not bleached either by age or grief, and would still be called luxuriant if she allowed it to grow; she has a large aquiline nose (a feature of frequent occurrence among the Wapisianas and Atorais), and a low forehead, and the general cast of her face is Jewish.

The language of the Amaripas differed only in dialect from

* This is a common expression among the Indians, always accompanying it with the assertion, that, consequently, neither Portuguese, nor Spaniards, nor English, have a right to remove them.

that of the Atorai. They inhabited the regions about the Tuarutu Mountains, near the river Wampuna; and as Miaha well recollected when the late Dr. Hancock was at the Upper Rupununi in 1811, I had a fixed point from which to date my inquiries as to whether the extinction of the Amaripas had been slow or rapid. She told me that at that time their number was not quite so many as two men had fingers and toes (I concluded she meant about 35 individuals), and of that number Miaha alone remained in 1843.

The grass of the extensive savannahs which surrounded the dwellings of the Amaripas will no more be trodden by one of the descendants of this tribe, and ere long the deer alone will range over those thousands of square miles of herbage plains, once the bed of a vast inland lake, now the grand burial-place of the Amaripas, the Atorais, the Wapisianas, and Macusis. Let us hope, however, that the poor remnant of these people may be preserved from destruction, and that, instructed in the Christian religion and relinquishing their unsettled mode of life and superstitious customs, they may become happy and useful members of a Christian community.

Mr. Goodall has sketched the portraits of several of the remaining Atorais and Taurais, as also of Miaha, the last of the Amaripas; while I have collected a vocabulary as far as circumstances would permit me, to save from utter oblivion a small part at least of the language of a tribe which with one death more becomes extinct.

We had in the afternoon a grand consultation; for although the weather had abated nothing of its severity, and still rendered it impossible for us to cross the rivers, I was anxious to ascertain how many individuals I could depend upon to accompany me from Watu Ticaba to the Tarumas. Captain Wayapari summoned the principal men into my hut, and opened the subject to them. Adopting the squatting posture peculiar to an Indian, he addressed himself to a Wapisiana, who, though by no means old in appearance, seemed to possess great influence, and poured forth such a stream of words that I was astonished at his volubility. His speech was unaccompanied by either gesticulation or strong intonation, but flowed uninterruptedly for nearly half an hour. He to whom the discourse was addressed answered from time to time by the monosyllable *hm*, sometimes varied with *ha*. The harangue concluded, it was responded to by the Wapisiana, but fortunately at less length. I was silent and all impatience for the issue. Sororeng, our interpreter, whose maternal language is closely allied to the Wapisiana, did not betray the nature of the colloquy either by a smile or the motion of a muscle of his face. It would have been a violation of all decorum to interrupt the speakers, upon whom the eyes of the whole

assembly were fixed; some squatting, some standing like statues, but all preserving a profound silence.

The arguments of the first speakers being apparently exhausted, I expected that some of the other chieftains, of whom there were four or five present, would give their counsel. I fixed my eye upon an old man who, with one finger on his mouth, had such an intellectual countenance, that I regarded him as the Solon of his tribe, and imagined he must be a Demosthenes in eloquence. I awaited his harangue with impatience, but he merely smiled. Wayapari, now addressing himself to Sororeng, told him to interpret to me that he himself would accompany us, and procure moreover a sufficient number of people to carry our baggage; but that we had to wait for more favourable weather, which he thought would take place with the young moon five days hence.

Thus ended our palaver, which, if it was not marked by those bursts of oratory peculiar to the Indians of the northern part of America, was remarkable to me for the earnestness with which it was conducted, and the characteristic countenances of the assembly.

It appears to be against their custom to permit females or children to be present at their consultations. A young girl, anxious to offer some cakes of cassada in exchange for some tinkling ornaments, and too impatient to wait till the conclusion of the palaver, unceremoniously came into the hut, but she was as quickly expelled as she had entered.

25th to 31st.—Those Indians who have kept aloof from intercourse with the colonists show the greatest abhorrence for the use of pork. A strict Hebrew could not reject it with greater loathing than does a Wapisiana. An old man of that tribe, whose children had accompanied us on a former journey to Roraima, had permitted their doing so only on the condition that they were never to eat any viands prepared by our cook, for fear he might have used pork in their preparation. We met with another instance at Watu Ticaba. A young Indian female was sometimes so far indulged as to receive the remnants from our table: she began to complain, and became seriously ill. Her relations immediately ascribed it to her having partaken of our food. She suffered the severest headache, and her uncle, who pretended to medical skill, insisted upon bleeding her, an operation which he performed by making three incisions on the side of her head with the serrated spine of the sting-ray, for the purpose of opening the temporal artery. He made a bad business of it, however; at least the other sapient men of the village did not think the incision high enough, and condemned his practice. The young woman felt no inclination to have the operation repeated, and accepting our remedies soon recovered.

This disgust for pork is very remarkable, and is likewise met with among the Indians of North America. Adair, who was forty years among the Indian tribes of North America, gives several instances. The objection does not, however, extend to the native hog (*Dycoteles labiatus* and *D. torquatus*), which is eaten by the laity indiscriminately, except when pregnant, or after delivery. The native conjurers partake but seldom of the native hog, as they consider it injurious to the efficacy of their skill. A candidate for that office does not taste it during his novitiate; in this latter case, however, the prohibition extends to all thick-skinned animals.

The influx of visitors from the surrounding country was very great, and such quantities of provisions were brought to us, that twenty additional canoes would have been requisite for its transport. At the same time, to have refused the purchase, for a few trifling objects of barter, of what they had brought from a distance of twenty or thirty miles, would have proved a great disappointment to them. Among the articles brought to us were many of those fine pine-apples which I already had occasion to admire on my first visit in 1837, for their size and exquisite flavour. That variety which is called in the islands the sugar-loaf pine is very plentiful. The Wapisianas call it curtoi-ruai or tapir's head, from its form bearing some resemblance to the head of that animal. Nana is the common term for pine-apple in its general sense.

June 2nd.—I had planned leaving Watu Ticaba this morning to proceed on our journey to the Upper Essequibo, but as one of the chieftains with his followers failed to arrive at the stated time, our departure was delayed till the next day. We had been weather-bound for nearly three weeks, and as a favourable change seemed to have taken place I was anxious to take advantage of it. During the period of our sojourn the weather had been exceedingly variable. The results of our meteorological observations were as follows:—

Mean of Meteorological Observations at Watu Ticaba; height 624 feet above the sea.

Period.	Instruments.	Forenoon.		Noon.	Afternoon.	
		6 h.	9 h.		3 h.	6 h.
May 17th to	Barometer	Inches. 29·369	Inches. 29·416	Inches. 29·417	Inches. 29·364	Inches. 29·358
	Attached Thermometer	74·64	77·49	83·47	84·06	79·43
	Detached Thermometer	74·80	77·36	82·69	83·55	79·08
June 2nd	Wet-bulb Thermometer	73·41	75·54	79·41	78·94	76·40

The highest indication of the thermometer in the shade was $85^{\circ}.1$, the lowest 72° . The black-bulb thermometer exposed to the sun rose on the 21st of May at $\frac{1}{2}$ past twelve to 125° ; not surrounded with black paper, but equally exposed to the sun, 113° . The wet-bulb thermometer under similar circumstances, 93° . The thermometer in the shade, 88° .

The evaporation, which, during the twelve hours of the day, amounted in Pirara to 320 grains out of 1000 grains, which were exposed in a cylindrical glass vessel,* in the morning, was only 278 grains. From the 18th of May to the 27th, the prevailing wind was N. It then veered eastward, between E. by N. and N. by E., its force, except during thunder-storms, seldom amounting to more than force 2 of Captain Beaufort's table.

The latitude of Watu Ticaba, deduced from thirty circum-meridian altitudes of α and γ Ursæ Majoris and α Crucis, was $2^{\circ} 32' 3''$ N.; the meridian distance, E. of Pirara, $20' 52''$ in arc, consequently $58^{\circ} 59' 8''$ W. of Greenwich.

2. *Journey from Watu Ticaba to the Frog Indians, and thence by the Rivers Caphiwiuin and Wanamu to the Pianoghottos.*

June 3rd.—It was nearly 9 o'clock before we left Watu Ticaba this morning; and as several of the Indians who had promised to accompany us had not arrived, I was under the necessity of leaving a great part of our provisions behind. We followed a different path from the one taken in 1837, and shortly afterwards arrived at a small settlement consisting partly of Wapisianas and Atorais. The huts were in a most dilapidated state; fissures and holes in every direction, quite large enough to afford the loungers every facility to contemplate the canopy of heaven without leaving their hammocks; but howsoever wretched the huts, the principal one was provided with two large troughs for Paiwori, besides a number of jars on a gigantic scale, made of clay, intended to be filled with the favourite beverage.

The chieftain was sick in his hammock, and presented a ghastly appearance; indeed all the inhabitants looked sickly, and I was informed that the smallpox had carried many to the grave.

4th.—Our last night's voyage had been on the verge of the savannahs; but we this day entered the forests. After a few hours' march we crossed the first rivulet, which was flowing into the Guidaru. The ground was undulating, and in many places covered with blocks of chert and granite, which extended to considerable distances in a N. and S. direction.

* I have followed here Dalton's plan, as the more rational. The glass vessel was 2.63 inches in diameter, and 1 inch deep. It was generally placed 4 feet above ground.

The forest abounded in that remarkable tree the Murre-Marr of the Macusi Indians, Aublet's *Couratari guianensis*, the woody capsules of which covered the ground. They are of a very remarkable form, sometimes 4 or 5 inches long, and somewhat three-cornered.* We found them very useful as cases for preserving insects and other curiosities in, which were thus effectually secured from accidents.

Our march was this day a short one, for at 11 o'clock we reached a settlement, and, as it was the last inhabited one we should find previous to our reaching the Tarumas on the Cuyuwini, our guides and carriers could not be induced to continue our march further. A circular hut of small dimensions appeared the only inhabitable house. Not less than six hammocks were slung in it, all of them occupied, and the heat was intolerable; several blowpipes, and materials for preparing the arrows, were hanging from the roof ready for use. The thrifty housewife was assiduously occupied in scraping the cassada-roots for preparing bread for the numerous visitors. Her long hair was for the occasion tied up in a queue with uncommon stiffness, so that with every bend of her body, while occupied in scraping the cassada-root, that peculiar ornament was in violent motion, at one time describing circles, at another sticking out almost at a right angle from the head to which it belonged. It was so ridiculous that I could not refrain from laughter.

The hut was thickly surrounded by arnotto bushes (*Bixa orellana*). At some distance from it I observed the remnants of a large fire; and Sororeng, the interpreter, told me that the people had lately burnt one of their dead. The Atorais are, as far as I know, the only tribe in Guayana who place the dead body on a pile of wood and burn it: the ashes are afterwards buried.

We erected our tent at a short distance from the hut, near the provision grounds. The towering stems of some palm-trees, which are called Manica by the colonists, and which I consider to be a species of *Euterpe*, really astonished me by their height. I had one cut down, and it measured, without its feathery foliage, 82 feet: its total length could not have been less than 100 feet; and, in spite of such a height, the circumference of the trunk near the base was only 19 inches.

The mean of a number of circum-meridian altitudes of the star γ Ursæ Maj., and α Crucis, gave me $2^{\circ} 18' 24''$ N. as the latitude of our camp. Our meridian distance was 21 miles E.

* The seed is a *Samara*, or winged fruit, which is attached in three grooves to the sides of a hard and fleshy somewhat triangular body, which fills the woody capsule, and is, near the summit, convex, protuberant, and slightly furrowed, so as to close the capsule firmly. At the time the seeds are mature, this fleshy body shrinks up, and dropping out of the capsule, sets free the winged seeds, which are carried by the winds in different directions.

from Pirara. The thermometer stood at half-past 7 o'clock in the evening at 74° ; the wet-bulb thermometer, $72^{\circ} \cdot 9$.

5th.—We started at 8 o'clock, and soon afterwards crossed the small river Dohté, one of the largest tributaries of the Upper Guidaru. We again met with numerous blocks from 14 to 15 tons weight, which extended, as on the former occasion, N. and S., and soon stood at the foot of the Carawaimi mountains, which we had to traverse. I estimated their height here about 1000 feet; their highest summit, more to the eastward of our path, is about 2000 feet. On the southern foot flows the river Guidaru.

It rained very heavily in the afternoon, and we were glad to pitch our camp at an early hour, near one of the smaller branches of the Guidaru.

6th.—A march of half an hour through thickets of bamboo and melastomas brought us to the Guidaru, here about 20 feet broad; consequently our present path traversed it much higher up than in 1837.

About 4 miles further southward we came upon an abandoned Atorai settlement, the former inhabitants of which were all dead except two children, who are now with their distant relations near the Rupununi. We had to cross numerous swamps abounding in a species of cacao, (*Theobroma bicolor*?) The large melon-shaped fruits of all sizes, some green, some of a bright yellow, were eagerly collected by our Indians; and indeed the pulpy arillus which surrounds the bean has an agreeable vinous taste. There was sufficient evidence that rats, agouris, monkeys, and peccaries were as eager after the fruit as our Indians, who, however, did not appear acquainted with the fine aroma which the seed itself possesses, and which induced Linnæus to call it the food of gods. We collected a number of seeds, of which I counted as many as sixty in one capsule. They afforded us for some mornings the most delicious cup of cocoa I ever tasted.

It is known to botanists that in *Theobroma*, as in *Gustavia*, *Crescentia*, *Cynometra*, some *Swartzia*, the new genera *Lightia* and *Alexandria*, the remarkable *Omphalocarpus*, &c., the flowering buds break through the rough bark of the trunk in lieu of appearing at the tender branchlets, as in the generality of trees. It is remarkable that cacao in its wild state is only found in swampy, or, at best, moist situations. The trees which I observed, although of a peculiar growth, almost shrubby, and the trunk less developed than in large forest trees, often attained the height of 50 feet. The capsules were large, and contained from sixty to seventy seeds, which were larger than in the cultivated kind, but not so thick.

We passed, soon after noon, the site of the Daurai settlement, where, on my journey to and from the sources of the Essequibo

in 1837-38, we had rested. It was now perfectly overgrown with bushes, and the spots where the huts formerly stood could not be reached without using the axe and cutlass. Scarcely six years had elapsed since I found here a settlement of nearly forty persons; two grown-up individuals of the number are now all that are known to be alive, both of whom, strange to say, are singularly marked—the one from his birth, the other by accident. The younger was born with only one eye, a large tumour overspreading the place where the other should have been. The elder lost his eye while shooting at a monkey with a blowpipe in a perpendicular direction: the poisoned arrow missed the intended victim, and in its descent fell right back into the eye of the Indian. He had sufficient presence of mind to withdraw it instantly—a severe sickness, however, and the loss of the organ were the consequences. These two individuals have now withdrawn from their former abode, where their wives and children had fallen victims to the unhealthy swamps by which it was surrounded: some young orphans, however, demanded their care when they abandoned the village; and these, with themselves, now constitute the last of the Daurais—soon to be numbered, with the Amaripas, as tribes only known by tradition among the old men of the adjacent and more populous nations.

7th and 8th.—On the first of these days we continued our march till 2 o'clock in the afternoon. It rained almost the whole night, and had not ceased when we started on the morning of the 8th. Knowing, however, that we should reach the first Taruma settlement at an early hour, we passed on. The site of the village had been removed from its former position to another near the left bank of the Cuyuini. We reached it soon after 11 o'clock, delighted that our pedestrian wanderings were for the present at an end. The weather had, upon the whole, been favourable to us; for a cessation of rain had enabled us to cross with comparative ease the swampy ground which we had found it difficult to traverse even in December, 1837, and which in the rainy season is scarcely practicable.

We crossed a large clearing, their former provision fields, but now apparently abandoned for more fertile grounds. Cassada plants (*Janipha manihot*), from the former cultivation, were growing up amid a rank vegetation, but had nevertheless a strong and healthy appearance, proving the great fertility of the soil, and that it was not exhausted by former crops.

We found three dome-shaped huts, one of large size and very neatly finished with branches of the Murumutu palm (a species of *Astrocaryum*, perhaps the *A. Murumuru* of Martius). The inhabitants were for the most part absent, some on visits, others hunting. The latter arrived in the evening; they had not been

very successful, as a single coita (spider-monkey), and a few toucans, were the sole produce of a whole day's hunt. I recognised only two of my former acquaintances among them; many had died since I last visited them, and some had moved higher up the river.

The few remarks which on a former occasion I made upon the Tarumas as a tribe* may be here repeated, with such additional information as I have been able to procure.

It appears the Tarumas were formerly located at the tributaries of the Rio Negro, and the Portuguese missionaries had some neophytes of that nation in Manaos. Disagreement with the other tribes, however, and other circumstances, induced a portion of the Tarumas to fly. They proceeded up the rivers which have their sources in the Sierra Acarai of the maps, and settled at the head waters of the Essequibo. As to the neophytes who had remained at the Rio Negro, death had committed such ravages among them that Von Martius, not aware of the party that was settled at the Upper Essequibo, pronounced the tribe extinct. Meanwhile information that a tribe of Indians called Tarumas was settled at the Upper Essequibo was brought to Demerara half a century ago by Mahanarwa, a Carib chief, who had lived some time at the Cuyuwini; but such was his exaggeration, that he described them as amphibious and living in caverns under the water, and flying on the approach of man. Mr. Morrison and myself were the first Europeans who visited them, which we did in December, 1837, and found the first settlement we fell in with, about 5 miles higher up than the present one. I have since seen from 100 to 150 individuals of the tribe, who in stature are little inferior to the Wapisianas, but by no means so good looking. The features of their females are not engaging; and they are so slovenly in their persons as almost to create disgust. The head of the Taruma is somewhat small in proportion to his body, and the outline of the cheek-bone rather hard; in colour, however, and in the general proportion of their bodies, the Tarumas do not much differ from the generality of Indians. The dialect spoken by these people differs from that of the other Indians of British Guayana, and the pronunciation and accentuation of their words are so strange, that their language strikes the most unconcerned in philological researches as different from the Macusí and Carib tongues. Their huts are dome-shaped, and do not materially differ from those of the Wapisianas. The interior has a more cheerful appearance, as the horizontal or cross-pieces of wood that connect the upright in the hut of the Macusí and Wapisiana are dispensed with. The

* *Vide* vol. x., p. 167, of our Journal.

centre of the floor is occupied by the large trough for the intoxicating drink, and the hammocks are slung from the upright central pole to the circular wall, along which runs a kind of grating, occupied by the dogs as their sleeping-place.

The Tarumas are great dog-fanciers, and are very skilful in training these animals for the chase; but as fire-arms are still scarce among them, few of the dogs stand fire. I have elsewhere* given a full description of one of the finest dogs I saw among the Indians, and which came from the Tarumas. We saw here some fine specimens of that variety, which resembles Buffon's St. Domingo greyhound; but none could vie with the dog alluded to, and which I unfortunately lost by an epidemic that prevailed among the canine race in Pirara. The stock of other domestic animals possessed by the Tarumas was small; but I observed a few cocks of our dunghill-breed, which evidently were kept more for state than use, as they were unprovided with hens. Like other Indians, these people neither eat their flesh nor make use of their eggs. Two trumpeters (*Psophia crepitans*) were masters of the poultry-yard; to their sway four-footed and two-legged animals alike submitted. If any disaster occurred they settled the dispute by their interference, and all new comers had first to submit to their ordeal, viz., a severe pecking and slapping with their wings before they were duly admitted of their society. We had brought some poultry with us, and among the rest a cock, which imagined it had as much right to crow and flap its wings as those that were born or had been long at the place. This caused contention, and the new comer had to fight it out with its conquerors; but it was ridiculous to see how quickly the trumpeters settled the matter, and, pecking at our poor cock, soon drove him out of the field. They equally attacked strange dogs, which generally ceded to them the palm of victory, and sought safety in flight. The Indians had brought three powis (*Crax alector*) to the place, a bird much larger than the *Psophia*—but so little rest was allowed the latter, that the owner of the powis was obliged to tie them up.

The inhabitants of the village appeared to cultivate the sugar-cane to some extent—at least large quantities were brought to us for barter. It was of that variety which is called the Otaheiti cane (*Caná de Otaheiti*). As common as the banded and Bourbon cane is near the coast, I have never seen a plant of that description among the Wapisianas and Tarumas. It is known that Cook and Forster were the first who made us acquainted with the Otaheiti cane. Bougainville introduced it into the Mauritius, whence it found its way to Cayenne, and from thence, towards the

* *Vide* vol. xiii., p. 65, of our Journal.

close of the last century, to Martinique, Guadaloupe, and St. Domingo. Captain Bligh brought some to Jamaica, and scarcely fifty years have elapsed and we find it spread over the tropical part of America, esteemed alike for its superiority by the planters and the Indians—the provision-grounds of the latter being never without it.

The cane cultivated by the Indians differs neither in size nor sweetness from the Otaheiti cane which is cultivated along the coast; and as, no doubt, scores of years have elapsed since it was transplanted among the Manihot or Cassada fields of the interior, it may be considered as acclimated, and it is not likely that, with common attention, it will degenerate in its quality.

In the provision fields behind my tent stood one of the finest trees I have ever seen in my wanderings. The compound leaf, the small leaflets, and indeed the whole appearance bespeak it to be a mimosa. Its whole height is 168 feet;* the trunk, from the base to the first branches, 73 feet. About a foot and a half above the ground it measured only 27 feet in circumference, but ascending perpendicularly of almost equal thickness to the first branches. It appears like a slender column bearing its finely-formed leafy capital. Numerous nests of the Oriole, which generally build in families, were constructed on one of its branches near the summit, sure of being there unmolested by either monkey or tiger-cat. The Indians themselves seemed to have some regard for this singular tree: it stood amidst the provision fields, and while almost all the other trees had been felled by the axe, this was spared; which made its gigantic size appear all the more striking.

We remained at the Taruma place much longer than I wished; but, as on leaving Watu Ticaba, we could not procure a sufficient number of carriers for all our baggage, I was obliged, on my arrival here, to dispatch people for the remainder. The delay was, however, favourable to more detailed observation. I have mentioned the Indian females as ill-favoured and neglectful of their persons. Their hair is uncommonly coarse and wiry, and does not fall over the outlines of the head, but stands out as if the individual were frightened, or as the imagination of the artist paints Shakespeare's witches. They paint their whole body, including the face, with broad black bands, without order and of unequal thickness; and their peculiar walk, with protruding abdomens, their coarse voice, and the peculiar intonation of their language, increases the abhorrence which the *tout ensemble* excites.

The Tarumas are famed as manufacturers of cassada graters, which they barter to a great extent with the neighbouring nations, chiefly the Wapisianas, who carry them to the colony, where they

* The height was ascertained by measuring a small base line, and ascertaining the angles with a sextant and artificial horizon.

receive about a Spanish dollar (4s. 2d.) for each. These graters consist of a flat board from $2\frac{1}{2}$ to 3 feet in length, and from 15 to 18 inches broad, and which is prepared from the soft wood, or outer layers of the Purple-heart tree (*Copaifera Spec.?*) After it has been properly smoothed and a slightly concave form given to it, the Indian marks it with cross lines, along which he beats in, one by one, small angular pieces of a hard rock (very compact green-stone), which he calls tempé, and which is found a few days' journey up the Cuyuni. The angular points project about a line and a half out of the wood. The board being covered with these stony asperities, he takes the milk of a tree called Hennicarro, which he colours with roucou or arnatto (*Bixa Orellhana*), and spreading it equally over the board, it serves as a glue in fixing the rocky fragments, besides giving a varnish to the whole. It is afterwards painted fancifully according to Indian taste, and exposed to dry in the shade, when the grater is completed. It is not possible to complete a grater in less than five or six days, including the fetching and preparation of the materials. Nevertheless he exchanges it for a common knife with the Wapisiana, who carries it 400 or 500 miles and sells it for a dollar. Time is, however, of no value to the Indian; and the inclination to work at that particular job is his sole inducement, regardless of the little reward of his labour.

13th.—This was one of the hottest days we had had since we left Pirara; the forenoon was cloudy, the sun scarcely making its appearance till after 12 o'clock. At half past 1 o'clock the thermometer under the tent, open and surrounded by bushes, stood at $91^{\circ}2$; the thermometer exposed to the sun, at 132° ; and the black-bulb thermometer, 136° , above which it would have risen if the length of the tube had permitted it.

14th.—The weather was similar to that of the preceding day till evening, when a white fog arose, which increased in intensity till midnight.

15th.—On the morning of this day the rain commenced, and continued uninterruptedly till noon on the 16th, occasionally coming down in torrents. On the following day I resolved, in spite of the weather, to proceed without waiting for the remainder of the luggage from Watu Ticaba.

Notwithstanding the rain and clouds, I had been enabled to procure 28 circum-meridian altitudes of north and south stars, which gave me for the latitude of the settlement $2^{\circ} 4' 30''$ N. The chronometer (Frodsham's) made its meridian distance $39' 56''$ (in arc.) east of Pirara.*

* Pirara $59^{\circ} 20' 0''$ W. of Greenwich.
 Taruma Place $39' 56''$ E. of Pirara.
 \hline
 $58^{\circ} 40' 4''$ W. of Greenwich.

Sixty-five observations of the thermometer and barometer during our stay gave the following results :—

Instruments.	Mean.	Maxima.	Minima.	Remarks.
Barometer	Inches. 29.270	12th, at 11h. 30m. A.M. In. 29.316	14th, 6 A.M. In. 29.191	The greatest range during one and the same day was 19.3 for the Thermometer, and 0.118 inches for the Barometer.
Attached Thermom.	79°·68	13th, at 1h. 30m. A.M. 90°·8	10th, 10 A.M. 70°·3	
Detached Thermom.	79°·92	91°·2	70°·5	
Wet-bulb Thermom.	76°·92	83°·7	69°·6	

The following meteorological table will give the other data of my observations at the usual hours :

Period and Number of Observations.	Instruments.	Forenoon.		Noon.	Afternoon.	
		6 h.	9 h.		3 h.	6 h.
9th of June to 17th inclusive, 65 Observations.	Barometer	Inches. 29.230	Inches. 29.268	Inches. 29.279	Inches 29.226	Inches. 29.225
	Attached Thermometer	71°·60	76°·46	82°·24	81°·93	76°·07
	Detached Thermometer	71°·90	76°·62	82°·25	81°·95	76°·18
	Wet-bulb Thermometer	70°·13	75°·08	78°·16	77°·96	74°·72

The evaporation amounted on the 12th of June from 6h. A.M. to 6h. P.M., to 252 grs. out of 1000 grains exposed to the sun.

I vibrated the magnetic needles on the 13th of June. The result of 100 vibrations at $88\frac{1}{2}^{\circ}$ was 2m. 53s.·08 per L. a, and 3m. 42s. at 90 per needle L. b.

The settlement is entirely surrounded with wood, the nearest savannah being about 30 miles to the north of it, and the small river Cuyuwini, here only 100 feet broad, flows at a distance of a few hundred yards. Its height above the sea, according to Bunten's barometer, was 745 feet.

18th.—We this morning commenced our journey by water in two small corials and six bark canoes, the whole party consisting of twenty-three individuals. The river was full to overflowing; the current, nevertheless, quite sluggish, and the water muddy. The few trees and shrubs that were in blossom along the banks of the river had only one or two flowers of a white colour, and of great fragrance. It is remarkable that white flowers, under the tropics, possess the greatest fragrance. The sawarai-palm, the murumuru, and the Uassa (*Astrocaryum Jauari*; *A. Spec.* and *Euterpe*) were the most frequent palms, occurring in small groups. The beautiful *Ionopsis violacea*, with its large paniculated scapes of nodding flowers; *Brassavola Martiana*, *Zygopetalum rostratum*, the common *Epidendrum variegatum* (alike abundant at the shores

of the sea as in the interior, at a distance of 600 miles from the ocean); here and there a *Brassia*, and a peculiar orchideous plant (of which, from its large clusters of stems, I expected some striking and handsome flowers when I first visited the Cuyuwuni in 1837), were the genera of that order which I found in blossom. I was much disappointed in the last of these, their large clustering stems producing only heads of small white flowers, nestling, as it were, in a gelatinous substance. I have seen something similar in a highly interesting plant, the genus and affinities of which I have not been able as yet to make out to my satisfaction. This gelatinous substance is so abundant, that it flows off as soon as the stem which bears the clusters of flowers is shaken.*

19th and 20th.—Since we left the Taruma place the rain has descended in torrents. It is peculiar, that about 10 o'clock in the forenoon, severe showers set in and last for an hour or two, when they abate, and the weather becomes variable. The river had overflowed its banks, so that we were compelled to pitch upon a sand-bank, a few feet above the water, as the only possible spot for establishing our night quarters. But no sooner had some of our Indians jumped upon it than they began capering about as if suffering from St. Vitus's dance, and immediately retreated. The whole place was swarming with that species of ant which our creoles call the yagerman, and of whose unmerciful bites we had already had sad experience. The day was far advanced, and it was doubtful whether we should find another convenient spot for our camp; we therefore determined to contend with the ants for the possession of the place. A fire was soon lighted, and by means of large fire-brands and calabashes of water we broke their columns, and eventually succeeded in driving them away from as much ground as we required for our tents, and we passed the night in peace.

21st to the 23rd.—We entered the Essequibo at half-past nine o'clock on the morning of the 21st of June, and its bed being full to overflowing, the current, which I found in November, 1837, to be scarcely more than half a mile per hour, now ran at the rate of three miles, and rendered our progress very slow.

With the best intentions of making the meteorological observations this day, scarcity of provisions obliged us to push on in order to gain a village of Taruma Indians. Indeed on the 23rd we had to paddle on from 6 in the morning till half-past 6 in the evening without permitting even a short repose to our people. On arriving we found the greater part of the inhabitants absent on a fishing expedition; but as one of our bark canoes had started

* Aublet's figure of *Serapias Caravata* (t. 320) resembles this plant. I observed it likewise, to my astonishment, on the high mountains in the Island of Grenada.

from our last camp 7 hours previous to ourselves, it had reached the settlement earlier than we, and had sent for the absentees, who were hourly expected.

The place consisted merely of two huts; one in the form of a common shed, the other circular, and perhaps from 45 to 50 feet in diameter; rising, not like the generality of huts, in a dome shape, but pyramidal. It was open above to allow the smoke a free passage; and overtopped by a smaller roof, to protect the inmates from the inclemency of the weather. A tree, taken out of the ground with all its roots, but of which the branches were cut, being fixed to the uprights at about 5 feet from the ground, supported the smaller roof at its upper end, while the roots served as pegs to hang up divers household utensils, caps, &c. The tree was stripped of its bark and painted according to the Indian fashion. The interior of the hut did not differ otherwise from the general construction; numerous dogs were lying peaceably on the gratings, and, to my astonishment, did not set up that furious barking which had so tried our patience during our sojourn at the former Taruma village.

I observed large baskets full of the leaves of the *Bignonia Chica*, with which the Indians prepare a red pigment, called Caraveru, by almost all the Guayana Indians. The leaves are dried in the sun, and at the first exposure, after having been plucked from the vine which produces them, they show the abundant feculent substance which they contain. This colouring matter is more known in the United States than in England, and is used as a dye. The artist of our expedition, Mr. Goodall, considers the pigment equal to madder, which is rather an expensive colour. The caraveru might form an article of export if it were sufficiently known; the more so, as its preparation is extremely simple.

I allowed our crew a day of rest. The weather had been very unfavourable during our journey; and those among us who wore clothing had no opportunity, except at night, to change their wet garments for a dry suit.

The Indians of the village offered their services for fishing or hunting. We were told that pacu and haimura (*Myletes Pacu* and *Erythrinus Macrodon*, vide *Fishes of Guayana*, in *Naturalist's Library*, vol. i., p. 236 and 254) were very plentiful, and in the course of the day several were brought to us. These two kinds of fish are here baited with the ripe berry of a species of *Phytolacca*. A bunch of these berries is suspended about an inch or an inch and a half above the water; and should there be any pacu in the neighbourhood they are sure to be attracted to the spot, and as they rise above the water to seize the dainty morsel, the Indian shoots them with his arrows. This fish is equally partial to the ripe fruit of the Lana (*Genipa Americana*, *G. Caruta*, &c.); but

as the subtle fish might suspect some danger if the fruit were handled by man, the Indian presses it without touching it with his hands, and puts it into a little basket made of withs, which he suspends as in the former instance. The Indians assert that the pacu scents the fruit at a great distance; it likewise takes the hook, which is baited with the fruit of the genipa, the crabwood (*Carapa Guayanensis*), or the acidulous berry of the casami, a species of *Eugenia*. The pacu ascends the river only when it is full to overflowing; when the water is low, and the rocks that impede their course are nearly above the water and overgrown with different species of *Lacis*, the fish will not take any bait, as he then feeds on the aquatic plants.

Numerous pine-apples of a superior taste, the orange-coloured fruit of a species of *passiflora*, which the colonists in Demerara call Scimitu, and large bundles of sugar-cane, were brought to us. Some of the cane measured above 8 inches in circumference, and the joints were from 7 to 8 inches apart.

25th.—We started in the morning, but the strong current prevented any rapid progress. A circumstance this day occurred which induced me to remark, that the chief apprehension I have ever entertained in travelling through the forests and savannahs of this country, has been of the venomous snakes which lurk in such places. Indeed the repeated instances I have known of death or misery for the rest of life which has followed the bite of one of these reptiles, are well calculated to inspire dread. I was sitting with Mr. Goodall under his tent towards dusk, when I felt something crawling between my feet, and before I had time to see what it was, Mr. Goodall jumped in great terror from his seat, crying, “A snake!” Although I felt when it crawled along my foot, I could not see it, but Mr. Goodall considered it to have been a rattlesnake; I doubt this, as they are not generally found in forests. But I was none the less thankful that I escaped unhurt; a single motion of one or other of my feet might have induced the snake to inflict its bite.

26th.—The morning was quite foggy, and we could scarcely see a few yards before us. Indeed the Essequibo rather resembled the Thames in a November morning than the tropical river we were navigating. The thermometer stood at 72°; the wet-bulb thermometer at 70°·7, and the air had a sulphurous smell, which I found annoying to my lungs. The rain set in again at 10 o'clock, and lasted the greater part of the afternoon.

27th.—We arrived at about 10 o'clock at the second Taruma settlement on the Essequibo. Since I last visited it (1837) they had removed the site of the village more to the southward. We were instantaneously observed, and a large crowd assembled in front of the principal hut. It appeared that our Taruma friends

had got better acquainted with fire-arms since I visited them on a former occasion; and one less familiar with their customs might have taken alarm on seeing them place themselves in a line near the bank of the river and fire off several muskets. It was, however, a mere *feu-de-joie*. Those who had no muskets had each a calabash in his hand, which was emptied before we touched the ground. "Paiwo, paiwo!" cried our men; "we have just arrived in time to partake of a paiwori feast." And so it was; my old acquaintance, Yarimoko, the Barokoto captain, came staggering toward me, and gave me his hand—an example followed by all the rest as well as they could. As I had to go through the ceremony of shaking hands with upwards of fifty, babes at the breast not being excepted, I was really tired. Some of the children, from 5 to 6 years of age, struggled most valiantly to subject themselves to the friendly shake; but when they perceived that the colour of my face was so different from what they were accustomed to see, besides being mustached and whiskered, they commenced crying most lustily.

The Barokoto, who was already a fine-looking Indian when I saw him in 1837, had become more portly in the interval: his beard was certainly stronger than I had seen it in any other Indian of pure descent. His two former wives were dead, but he had consoled himself with two others; the one *enceinte*, the other a young girl perhaps not yet fourteen years of age, who appeared so much attached to her husband that she followed him like his shadow. Their years were certainly disproportionate, for he was 50 or upwards. Such mis-alliances, as we should call them, are by no means uncommon; and the strong frame of Yarimoko made it probable that he would outlive many of the striplings around him. On entering the festive hut, we observed a corial or boat 22 feet long and $3\frac{1}{2}$ wide, which had evidently been filled with their drink, but which was nearly empty to the dregs. Next to it stood a large trough about 15 feet long, $2\frac{1}{2}$ wide, and $1\frac{1}{2}$ deep, filled to the brim with paiwori, which was yet to be emptied before the feast should be over. The men were highly painted with caraveru, and wore on their heads that tasty cap made of the green feathers of the parrot, surmounted by the snow-white plumes of the Harpy eagle (Cocoi, in the Taruma language; Guan, in the Macusí; the *Harpyia destructor*). The ceremony of greeting their acquaintances and the stranger, by inquiring after every individual of the family, occupied several hours.

At a later period they resumed their dancing, which did not differ much from the same amusement as practised among other tribes. The men had large sticks in their hands, round which a number of seeds were tied that made a rattling noise when the stick was struck upon the ground. Others had merely their bows

and arrows, and other implements of war and the chase ; in a word, every one carried something. They placed themselves round the large vessels that contained their drink, and having sent forth their loud and startling yells, followed by a shrill whistle, which they produced by blowing through their fingers, they put themselves in motion, going round the troughs sometimes slowly, sometimes quicker, stepping after each other, keeping time and bending the whole body at each step. After this had been continued for some time, another yell was set up, when the women, who had not been present during the first dance, issued from a neighbouring hut, led by one of their number having in her hand a maracca or rattle ; the others followed in succession, each having her right hand on the shoulder of the one who went before ; and all with looks bent on the ground. Some carried their babies, others a puppy, or some other object on their left arm. They now joined the men in the dance, forming an inner ring near the troughs, and going round them in a contrary direction to that of the men. Their step remained always the same, however rapid or slow that of the men might be, and they accompanied their dance with a low monotonous song.

They continued their amusement till far in the night, and in order to avoid disturbance I had removed my tent to some distance. At an early hour in the morning I was awoken by loud voices hard by. It appeared that some one of the votaries of the feast had indulged too deeply in his potations, and persisted in preferring the cold wet ground to his hammock, to which his better half objected ; and, after a long debate, she induced him, partly by good words, partly by threats, to follow her into the house. The mode adopted among the Warrau Indians in similar cases is admirable. When the men are intoxicated with paiwori, and the persuasion of their wives remains without effect, the women join together, and, raising the refractory votary of the Indian Bacchus from the ground, place him with great agility in his hammock, and with a rapidity truly surprising, lace him in, where he remains like a mummy, or a babe in its swaddling clothes, till he comes to his senses.

Yarimoko was merely a visitor at the village ; his own settlement was a few miles higher up the river. The information I received with regard to the Corentyne, and the possibility of descending that river, was quite contradictory. The Barokoto acknowledged ultimately that he had drunk too much the previous night, and that his head was not yet clear. He seemed to have some object in view by deterring us from commencing our journey. He told us of water-spirits which dwelt in the Corentyne, and who wrought the destruction of any one who navigated that river ; and when he found this had no effect, he said the country we had to

pass through was inhabited by Indian sorcerers and tribes of very bad character, and that food was scarce. I treated his observations as they deserved; and in order to impress him with the power of white men, I profited by circumstances, as the great discoverer of the New World had done before us, and predicted that, in the course of an hour, the sun would be partly obscured. He related, through our interpreter, what I had told him, and a cloudless sky favoured me by allowing the partial eclipse to be visible. I showed it to those who were sober, through the telescope of the sextant, well knowing that their relation would lose nothing by being repeated. Yarimoko left the village the next morning (June 29th), and, before going, promised that he would accompany me to the Maopityan or Frog Indians, where we might procure information with regard to the Corentyne, which he called Curitani, and that his people should prepare bread for us, as the Maopityans were short of provisions.

The Tarumas do not like to intermarry with other tribes; indeed the Barokoto Yarimoko, who is the head of one of the settlements, is the only exception among those at the Essequibo and Cuyuni. A few more Tarumas are said to live among the Maopityans, of whom some of the men have married Maopityan women. This repugnance to intermarry with other tribes must materially tend to keep down the number of this tribe, which does not exceed 150, among whom a great family likeness prevails. It must also be observed that, as the number of women is not equal to that of the men, young girls, before the age of puberty, are admitted to the rights of married life, a practice which must injure their health, and prevent their becoming mothers; or, if they have children, they usually do not survive many days, or remain sickly beings all their lives. We saw at the Barokoto's place a young woman not more than 12 years old, or 12 rainy seasons, as they term it, with a child at her breast. Another woman with an infantine face had already the signs of puberty, and had been a wife for some years without having had any offspring. This early intercourse, and the circumstance that chastity is no virtue among unmarried women, among the Indians, must also greatly tend to the decline of the tribes.

The language of the Taruma Indians is not disagreeable, when slowly articulated; but it is their peculiar mode of speaking it, and of uttering the first syllable of each word strongly through the nose, that renders it inharmonious. It would take a European years to learn that nasal twang—that starting and raising of the voice, that renders their dialect one of the most remarkable among the tribes I have hitherto visited. They possess the sound of the English *th* and the Greek *ph*. While European languages are distinguished by the brevity of the numerals, the Indians require

great circumlocution to express a number above five, which, being the number of fingers of one hand, serves as a radical number. Six, in the Taruma language, is thus expressed, "Oshekia akanna urapani ahumi;" signifying that one finger from the other hand must be added to the radical number. Twenty is expressed, as in other Indian languages, by "one man,"—namely, the number of fingers and toes a man possesses, "oshe coarse," in Taruma.

It is very remarkable that they call an eclipse of the moon "piwa-toto;" being a compound of "piwa," moon, and "toto," earth. Are we to suppose that this is accidental, or are they aware that the interposition of the earth is the cause of the eclipse? and whence have they derived that astronomical knowledge?

Well acquainted with the aversion of the Indians to meddle with the dead or to touch their remains, I have experienced an almost insurmountable difficulty in procuring any skulls for the elucidation of the physical character of the different tribes. From what I had observed, however, of the chieftain at Watu Ticaba, I was encouraged to offer him a large present if he would give his assistance for the disinterment of one of the Wapisiana skulls. I succeeded beyond expectation; and though the skull which I procured was not quite perfect in consequence of the root of a tree having grown over it, nevertheless it was sufficiently so for the study of its form. This success emboldened me to put the question to the Barokoto, who, to my astonishment, entered immediately into the proposal, and observed that, if handsomely paid, he would give me the skulls of his mother-in-law and of two of his former wives, the elder of whom I had known on my former journey. He came this morning (July 5th), and requested that, while he should go for the skulls, I would remain at the place, to avoid suspicion. He accordingly started with Mr. Goodall, my coxswain, and the interpreter, to the site of the former settlement, and commenced digging where his former hut stood, and soon exposed the bones of the younger of the two.* The elder was buried close to her; and Mr. Goodall relates that he appeared rather affected at seeing her remains, and told him that she had been a very good wife, who had always seen that his comforts were provided for. She was buried in a bark canoe, and with her was deposited a bottle and a drinking-cup. On inquiry, he told Mr. Goodall that she herself had requested it, that she might not suffer thirst while proceeding to the other world; the bottle still contained some water. In the grave of the younger were some glass beads, and a few articles of dress. Next to her was the grave of

* Judging from the skull and teeth, she could not have been more than ten years of age when she died, and, as Yarimoko told me, she had never recovered after giving birth to her first child.

her mother, and of her young child. Near the remains of the child was lying a looking-glass and a broken cutlass; and near those of an old woman were some glass beads. The child must have been very young, as the skull was broken up, and could not be removed. The other three were, however, in good order. As ready as Yarimoko appeared to part with the members of his own family, he could not be induced to show Mr. Goodall and his party a grave where a man was buried. The former he considered his property in life and death; but over the remains of an individual who was not connected with him by the ties of blood or marriage he considered he had no right.

As we were the first white people who paid a visit to the Maopityans, I had, in the first place, despatched messengers to inform them of our arrival, and to request them to meet us at that place on the Essequibo, where we had to disembark in order to continue our journey overland. The time had now approached when we might expect to find them at the spot; and I gave the necessary orders for our departure the next morning, the 8th July.

I must confess that of all the Indian tribes the Tarumas appeared to us the most friendly and obliging. We lacked neither fish nor game during our stay. Whenever we found that our larder was getting empty, hunting or fishing parties were undertaken, and it was sure to be replenished. That excellent fish, the Haimura (*Erythrinus Macrodon*), was very abundant; and one which was caught in a trap measured 3 feet 4 inches, and weighed 30½ lbs.

Forty circum-meridian altitudes of α and β Centauri, and γ Ursæ Majoris, gave me as a mean $1^{\circ} 43' 58''$ N. for the latitude, and the chronometer gave the meridian distance $59' 9''$ E. of Pirara.* The following data are extracted from the Meteorological Register:—

Number of Meteorological Observations from June 27 to July 6 inclusive, = 81.
The height of the settlement is 767 feet above the sea.

Date.	Instruments.	Mean.	Maxima.	Minima.	Remarks.
1843. June 27th to July 6th inclusive, 81 Observations.	Barometer . .	Inches. 29.248	29th June, 9 A.M. 29.341 in.	6th July, 6 P.M. 29.166 in.	Weather quite variable, frequent thunder, with rain, and severe fogs in the morning. The air generally calm, and if there was a slight breeze it came in general from the E. by S., & E. by N.
	Attached Thermometer .	75°.11	30th June, 1 P.M. 80°.60	28th, 6 A.M. 67°.28	
	Detached Thermometer .	75°.22	80°.60	67°.00	
	Wet-bulb Thermometer .	73°.92	77°.20	66°.00	

* Pirara $59^{\circ} 20' 0''$ W. of Greenwich.
2nd, Taruma Place on the Essequibo . . . $59' 9''$ E. of Pirara.

$58^{\circ} 20' 51''$ W. of Greenwich.

The greatest range, during one and the same day, was on the 28th of June, when the thermometer varied $12^{\circ}.8$, and on the 1st of July the barometer varied 0.107.

The evaporation for the 12 hours of daylight was—

On the 2nd July, 13 grains out of 1000 grains.

„ 3rd „ 21 „ „

„ 4th „ 17 „ „

July 8th.—We started this morning at 8 o'clock, accompanied by several of the men from the Taruma settlement, and the number of our fleet of bark canoes was considerably increased in consequence. After we had proceeded for about 3 miles, we halted at Yarimoko's settlement, where we found a large quantity of bread prepared for us, which we bartered for cutlasses, axes, knives, &c. The chief himself accompanied us with his whole household, including men, women, children, dogs, parrots, and all that was moveable. He himself, with his three wives, of whom the youngest had not yet arrived at puberty, occupied a bark canoe for their exclusive use, of which he acted as coxswain, and his wives as paddlers. I do not think they would have looked upon him with much affection if they had known that only a few days previous he had disinterred the skulls of his former wives to sell them to me; and that a similar fate might await their own skulls if they should die before him, and another traveller direct his course to these regions. He wisely kept his dealings in organic remains to himself.

One of the Tarumas of our party, a handsome young man, was attacked while *en route* by a strange disease: his tongue and teeth bled to such an alarming degree that towards nightfall he was sinking rapidly. Our small medicine-chest was, unfortunately, not provided with a styptic, and I was really glad that I succeeded towards evening in arresting the profuse bleeding with warm vinegar. His case was very remarkable indeed: the great discharge of blood did not come either from the lungs, the windpipe, or its termination the bronchia, but from the tongue, from which it oozed, and from the place where, several years ago, a molar-tooth had been extracted. He only complained of a weariness in his limbs and great chillness, and the day after the bleeding he felt quite giddy. He observed that he had suffered in a similar way when his face had swelled considerably. I thought it best to send him back to his settlement the second day after the bleeding commenced, as I did not consider him strong enough to undertake the journey overland.

9th and 10th.—We reached the mouth of the small river Urana at 9 o'clock. We had now to continue our journey overland, and accordingly abandoned our bark canoes. I was disappointed in not finding the Maopityans, whom I expected to have met there. Our baggage was soon unloaded, and put into a temporary hut;

and as the Maopityans did not arrive in the course of the day, I started next morning, leaving the greater part of the baggage behind, to be brought after us. We had proceeded, however, only a few miles this morning (the 10th), when the barking of dogs announced the approach of strangers, and our Taruma messengers, accompanied by 14 Maopityans, stood before us. The latter differed in figure and dress from the tribes I had hitherto seen. Although they were only of middle stature, they were thinner and more bony than the Tarumas, their heads laterally flatter, and the eyes brilliant; but what most astonished me was the peculiar way in which they wore their hair: it was plaited in a long queue, which hung down the back, and in lieu of being wrapped round with becoming black ribbon, as we still occasionally see it among gentlemen of the old régime in Europe, the Maopityan had inserted it into a tube from 10 to 12 inches in length, made of palm-leaves, and ornamented with numerous strings, to which feathers of all colours were attached. There were four females among their number, who, if they were a fair specimen of the Maopityan ladies, gave us rather a good opinion of their looks. We admired the ingenious, if not pretty way, in which they wore the cincture which attaches the only piece of dress the females of the uncivilized Indians wear in the interior. A piece of round bone, very neatly worked, and from which long strings of beads were suspended, was worn as an ornament in their ears. The men used, for a similar purpose, pieces of bamboo about 2 inches in circumference, which were passed through the lobes of the ear; and below the angles of the mouth were holes for the reception of small sticks, ornamented with feathers, which very much resembled the antennæ of a May-bug.

They greeted us with much cordiality; and as a severe shower of rain detained us for some time at the spot where we met, many a curious glance was thrown at us and at our baggage. The rain descended in torrents. I resolved to proceed only a short distance, in order that the Maopityans might fetch up the baggage we had left at our last night's camp. Their own burdens which they had brought with them were therefore set down, and they started off in all haste. Scarcely, however, were they out of sight, when the Tarumas in our company fell, like locusts, upon the Maopityans' baggage, and commenced an examination of it which, for minuteness, might shame the overhauling of our strictest custom-house officials. Nor did they confine themselves to a mere examination, but began appropriating to themselves, not only the eatables, but everything else they took a fancy to. Perceiving my astonishment, they endeavoured to bribe my approval of their proceeding by the offer of one of the combs, which the Maopityans execute very skillfully; but, to their great surprise, I expressed to their chief my

detestation of their conduct, and insisted that he should order his people to restore everything that could be restored. The smoked maipure (*Tapirus Americanus*) and apuya (*Dycoteles torquatus*), which they had swallowed in a ravenous manner, could not, of course, be restored; but I saw that every other article was packed up again, as they had found it, and, keeping watch over it, I did not leave the baggage until I saw every person on his march. Our Macusís and Wapisianas had naturally no hand in this attempted plunder.

11th and 12th.—Our course during the first of these days was E.S.E. The path led us over hills from 100 to 150 feet high, which alternated with low swampy ground, overgrown with the manica palm (a species of *Euterpe*); the graceful *Mauritia aculeata* (here, however, of such a height, from 60 to 70 feet, that I have some doubts whether it be really the *M. aculeata* of H. and B.); numerous scitamineæ; the turu (*Enocarpus Bataua* and *Bacaba*) and muru-muru palms (*Astrocaryum Murumuru*); and that remarkable palm the *Iriarteia exorrhiza*, which raises its trunk, by means of a number of roots similar to the banyan-tree, 6 to 8 feet above ground, and which may be compared to scaffolding, from the middle of which the trunk rises.* Of equal interest was a palm which our Macusís pointed out to me with great delight, and which furnishes the outer cases of their blow-pipes. I consider it an *Iriarteia*, though it has not that peculiar growth of its roots.

We pitched our camp near numerous blocks of granite, and starting next morning at half-past six, crossed soon afterwards the small river Onoro, which falls into the Essequibo. Our path was now more level, as it followed the valley of the river. After noon we reached the foot of a mountain, which our limbs, fatigued with a march of six hours, refused to climb. I therefore gave orders to pitch our camp, and with Mr. Goodall and two guides went in the direction whence the sound of a cataract seemed to promise one of those sublime scenes of nature so frequent in the interior of Guayana. We had advanced about a mile when we came in sight of a magnificent cascade, formed by the Onoro, which precipitates itself from a height of about 100 feet into the valley. Our Maopityan guides remained at a respectful distance, not venturing near for fear of spirits. Mr. Goodall and myself got as near as we could, and then scrambled to the summit.

The black masses of rock which rose above the foaming waters were clothed with verdure, and chiefly overspread with a *Lycopodium* interspersed here and there with a scarlet *Justitia*. I found there a plant of great interest to me; it was a *Solanææ* of humble growth, but whose flower resembled an *Auricula* in colour. I was

* "Radices 8, 10, 20 et plures altitudine 6, 8 pedum e terra emergentes atque in conum vastissimum dispositæ."—(Mart.)

astonished at the total absence of Orchideæ, which generally delight in those situations where the spray of a cataract preserves a constant moisture. The high trees prevented our enjoying a prospect from our elevated situation, but we could see to the S.W. the mountains we would have to ascend the next morning.

The thermometer stood under the tent at 3 o'clock in the afternoon 78° , at 6 o'clock $74^{\circ}2$; the difference between the wet and dry bulb was, during the former hour, $1^{\circ}6$, during the latter $0^{\circ}8$ or $\frac{4}{5}$ ths of a degree. The barometer varied between $29^{\circ}148$ and $29^{\circ}114$.

13th.—Started soon after 6, ascended and halted 40 minutes after 7 on the summit of Mount Zibingaatzacko. Bunten's barometer was here consulted,* and we found that our height was approximately not more than 370 feet. We again crossed the Onoro, rushing turbulently towards the large cataract. We thus ascended and descended hill after hill, and, although the intermediate valleys were always considerably higher than our camp last night, we descended nevertheless, in several instances, from 200 to 300 feet, in order to ascend a similar height at the distance of a few hundred yards. These mountain valleys between hill and hill were swampy and overgrown with *Manica* palms, and with the beautiful *Mauritia flexuosa*, or Ita palm. As splendid as this latter tree appears in the savannahs, which seem to be its favourite place of growth, it cannot vie with the specimens I saw here. Some of the trunks attained a height of more than a hundred feet before the beautiful fan-shaped leaves spread out in tropical grandeur. Their luxuriant growth was really surprising, the more so as I had hitherto seen them only on plains and arid savannahs, while here, at an elevation of not less than 1200 feet above the sea, their summits stood 120 feet above the ground.† The other species with a prickly trunk (*M. aculeata*) grew to a height of from 50 to 60 feet, and was much more robust than the specimens I had seen at the Rio Negro, nor did it grow here in groups. The Maopityans call the Ita, Kibi; the Tarumas, Yuro-i.

We traversed the summits Honicuri, Yiatzo, and Kabai okitza, and after descending into the valley between the sixth and seventh summit, we found the first rivulet, which flows towards the Amazon. It was then about 10 o'clock, and our barometer indicated a height of 1130 feet above the sea. The ridge which causes the division of the basins of the Essequibo and the Amazon, in these regions, is 120 feet higher. The small rill is the

* Barometer $28^{\circ}749$ in.; attached thermometer $70^{\circ}43$; detached thermometer, $71^{\circ}35$; wet bulb, 70° .

† "Crescit raro in elevationem octigentorum pedum supra oceanum adscendit regiones maritimas potius quam interioris terræ continentem amans."—(Kunth.) I observed them on savannahs as high as 3300 feet above the sea, near Roraima.

Caphiwin, or Apiniau, which receives the Wanamu, and forms at their junction the Caphu, the river Trombetas of the Portuguese.

We now followed more the direction of the ridges of the hills, having previously crossed them transversely. Our course continued E. by S., deviating scarcely half a point. The narrow valleys, or glens, which divided the hills, descended towards the east. Having passed the summits Ketia-una and Kenukawai, the latter the twelfth hill in the course of the morning, we traversed three more, and then descended towards the river Darura, one of the first tributaries of consequence which joins the Caphiwin, or Apiniau. It was just noon, the greater part of our people far behind, and even Mr. Goodall, who otherwise proved himself such an excellent pedestrian, had dropped among the reserve, and I was about giving orders for pitching our camp on the banks of the clear mountain stream, but our Maopityans, anxious to reach their home, described the distance of their settlement as only a couple of miles, and, after a rest of half an hour, we commenced our march anew. I found it, however, a good five miles before we entered the provision grounds, and heard the barking of the dogs announcing our arrival.

We saw before us two huts, the one of uncommon large size, the other smaller, but both overtopped by that peculiar small roof which gives to them an Asiatic appearance, still further increased by pieces of wood, cut in different shapes, hung up along the eaves, and which the wind moved to and fro. We directed our steps to the smaller of the two, where we were welcomed by the chieftain (a Taruma by birth) and all the other inhabitants who had not come to meet us at the Essequibo. It was ridiculous to see with what fear depicted in their faces the females gave us their hands; they had no doubt been schooled to tender their welcome in that way; but if they had expected an electric shock the hand could not have been offered under greater apprehension. Our Macusis and Tarumas, who considered themselves so much better acquainted with European politeness, laughed most heartily at their awkwardness. I noticed among them a young woman with a frightful tumour on the left side of the abdomen above the hip, and what rendered her appearance still more shocking, she was *enceinte*. She possessed much more courage and vivacity than the others, and with a smile gave me a hearty shake when I offered her my hand.

After the first burst of welcome was over I went to the large hut, the dwelling of all that remained of the tribe of Maopityans, or Frog Indians. The interior of the hut was similar to that of the Tarumas, but surpassed in size any I had seen among the Indians. It measured 86 feet in diameter, and was of a proportionate

height. That peculiar ornament, the painted trunk of a tree, which the Maopityans call Aiyukuba, was more adorned with Indian figures than I had seen it among the Tarumas.

The flatness of the head and consequently the long face and short circumference is peculiar to the tribe. I have not been able to learn, upon the most minute inquiries, that the form is given to the head by artificial means. The occiput of the men is high, and almost perpendicular above the front; the frontal bone is small with regard to extent, and in no comparison to the face below the eyes; the cheek-bones are harsh and prominent; but the most remarkable part of the head is the great extent between ear and ear, if measured from the upper part of that organ, and the line continued above the eyebrows, to the commencement of the other ear.* It surpasses the measurement of other Indians generally by an inch or two. The lower jaw-bone is of great depth, a formation which is generally considered as a sign of animal propensities, which, however, their high front seems to counterbalance. Their noses are good. The features of the females are regular, the brow delicately arched; the eyes are large and black, and, like those of other Indian females, possess fire only when animated, at other times their usual expression is that of diffidence and bashfulness, and are seldom raised to the speaker. The average stature of the men is 5 feet 6 inches, that of the females 4 feet 10 inches. The tallest of those who form the remnant of the tribe was only 4 feet 11½ inches; but their form is good, and the hands and feet very small.

The bows of the Maopityans are larger than those of the Macusis and Wapisianas, being generally from 6 feet 10 inches to 7 feet in length. The lower or convex side runs more in an edge than in the bows of the former tribes, and they are likewise differently strung. Iron is still scarce among them, and the greater number of arrow-points are made of bone. They possess a kind of arrow-poison which they prepare from a root, which was the only part of the plant I saw, and from which I judge it to be herbaceous. The poison is neither so strong nor does it retain its quality so long as the Urari of the Macusis. The remarkable tube, or blow-pipe, the Cura of the Macusis, is known to them

* I add a comparative measurement to substantiate the foregoing statement:—

	Maopityan Indians.				Taruma.	Wapisiana.	Atorai.
	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.
Circumference of the head along the frontal sinuses and temporal ridge	1 9·3	1 10	1 9·8	1 9·1	1 10·6	1 10·2	1 10·3
Long diameter of face .	9 9·5	9 9·1	9 9·8	9 10·1	9 10·1	9 10·2	9 10·1
Diameter between the processes of the helix }	9 11·8	9 12·5	9 13·1	9 12·0	9 11·2	9 11·1	9 11·0

only from description, nor did I see any fire-arms among them ; but when I recollected, that on my first visit to the Tarumas in 1837, the whole tribe possessed only two old-fashioned fowling-pieces which they were sadly afraid to fire off, and that at my present visit I saw scarcely a man without one, it was clear the Maopityans could as easily procure themselves these weapons, so superior to their bows, the more so as they are considered good trainers of hunting dogs, and among the Indians of the interior a good hunting dog, like a marriageable girl, commands a gun.

One of the men dressed himself in the way they use for great occasions, and he felt quite proud when the artist of the expedition, Mr. Goodall, took his portrait. The arm is ornamented with bracelets which are 4 inches broad, and which are made by winding the young leaflets of a palm round a form of wood of the same thickness as the arm: they are afterwards ornamented with Indian figures. They are worn round the upper arm, and a bunch of the large tail feathers of the red and blue maccaw (*Macrocerus aracanao*) are fixed between the arm and the bracelet, overtopping the head of the wearer by 5 or 6 inches ; add to this the two parcels of parrot's feathers attached at right angles to two pieces of wood fixed in holes that have been bored, when young, below the angles of the mouth, and which, as already observed, may be likened to the feelers or antennæ of a May-bug, and besides all this, that peculiar head ornament, the queue, encased in a tube, and adorned with numerous strings of red cotton, to which feathers of divers colours are attached, and it will be confessed that the Maopityan in his holyday dress presented a very peculiar appearance. He had in his hand a thick piece of bamboo which, in consequence of its being hollow, makes a loud noise when stamped upon the ground, but which for the sake of more noise is surrounded with hard shelled seed-pods,* which adds a peculiar shrill sound.

These people are very ingenious ; the combs which they manufacture are really handsome. The teeth are made of palm-wood, and fastened into a piece of bone. At the distance of an inch and a half below this bone are fixed two pieces of palm-wood, one on each side of the teeth, and the space between the two pieces and the bone is plaited with red and white cotton, which serves both as ornament and for fixing the teeth firmly. Like the Tarumas, they do not cultivate much cotton, and prepare their hammocks of the fibres made of the young leaves of the *Mauritia* palm. Their waist-cloths are of spun cotton, but they barter them from their next neighbours, the Woyawais, who, it appears, are great cultivators of the useful cotton-plant.

* They appeared to me to resemble a *Thevetia*.

These Maopityans are the last of their tribe; their whole number amounts to only 39 individuals, namely, 14 men, 11 women, 8 boys, and 6 girls. They were formerly divided into two small settlements, but latterly they united, as if a sentiment of their approaching extinction had brought them together.

In their vicinity was a small settlement of Taruma Indians, the chieftain of which they invited to preside over them as captain, and he and his people moved over to the Maopityans, who thus connected themselves closer with the Tarumas. They are now living together in the great circular hut, forming a community of 60 souls, isolated from other Indians by thick forests and high mountains; their nearest neighbours being, to the south, the Woyawais, to the west the Tarumas at the Essequibo, both about 4 or 5 days' journey from them. They call themselves Mawakwa; the Wapisianas, however, call them Maopityans, from "mao," a frog, and "pityan," people or tribe.

Their provision-fields were very extensive, but they had been improvident, and the cassada plant was not yet ripe for use; and the information of Yarimoko was quite correct, that they mixed rotten wood with their cassada flour to make it last the longer. Our glass beads and knives were, however, too seducing, and the women (to whose department the barter of the produce of the provision-grounds belongs) readily parted with what they could spare.

I was naturally anxious for information as to the direction we should take in order to fall in with the head waters of the Corentyne. The intermediate space between this settlement and the river appeared to be quite uninhabited; and although the people knew of the existence of a river of the name of Curuni, the only practicable way, they said, to reach it would be to follow the Capihuiuin or Apiniau, until it is joined from the N. by the Wanaumu, then to ascend the latter to the settlement of the Pianoghotto and Drio Indians. The Frog Indians were, however, no great navigators, and their fleet was most miserably inefficient, consisting merely of a few bark canoes in a rotten state. I therefore gave the necessary orders to construct wood-skips, or bark canoes, for our own navigation, and, in expectation of such straits, the coxswain had been ordered to provide himself with the necessary tools, and principally a pair of good American axes,* on our starting from Pirara. All hands were soon engaged in felling trees for the construction of our craft. I engaged at the same time

* A traveller through the forests of the interior should consider an American axe an indispensable tool. A dozen other axes of the best European manufacture will not prove equal to a good American felling axe. Two of these axes have been used during our expedition, which lasted four years, and were, at the end of that time, as serviceable as at the commencement.

two Maopityans to proceed next morning to the Pianoghotto at the Wanamu, to inform them of our intended visit, and to request them to meet us with provisions, as the scarcity among the Maopityans did not promise a large supply.

The Indians between the 4th and 5th parallels of latitude generally make use of the Bully-tree (*Mimusops Spec.?*) for canoes; but as this useful and magnificent tree does not grow here, we had to use two other trees, one apparently allied to the locust (*Hymenæa Courbaril*), and the other the white Maran, or Balsam Capaiva tree. I was quite astonished when I became aware of the fact, that the latter tree is likewise used for such a purpose.

The coxswain, who had been present when they felled the trees, told me, that when they came near the heart, the balsam gushed out in such quantity that several gallons might have been collected. In the absence of bottles they brought several joints of the bamboo filled with it, which being ultimately put into quart bottles filled five of them. It was perfectly white and transparent. The Maopityans, like all other tribes, call this plant Maran, but its medicinal qualities are unknown. Indeed, I have never seen an instance of that peculiar disease for which it is used in Europe among the tribes of the interior. The Indians use the balsam like palm oil, to anoint their bodies with.

The layers of the liber of a species of Amyris were found by Cailliaud to be used by the Nubian Mohammedans as paper, on which they write their legends;* we may therefore conclude that the bark parts easily from the wood, and this quality seems to belong to the whole order of Amyridaceæ, to which Lindley has joined the genus *Copaifera*† and the Indian selects the bark of these trees for the preparation of his slight skiffs. Some of these trees, however, must attain an enormous size, as a single one gave us two bark canoes, each 35 feet long, and 4 feet 5 inches wide. The bark of the tree, which I considered to be a species of *Hymenæa*, is much thicker than the former, and nearly half an inch in thickness. The wood is white, and appears to be rather soft; but the heart is heavy and close-grained, and apparently of great durability. One of these trees, which was cut down near our camp, measured 125 feet from the base to the top of the branches. The Maopityans call this tree Yaru-yaru.

16th.—After suffering the pains of labour for nearly 3 days, the young woman with the large tumour this morning brought a child into the world. Previous to her delivery she had been

* Lindley's 'Natural System of Botany,' 2nd edition, p. 165.

† I do not follow Endlicher in his 'Genera Plantarum,' who considers *Copaifera* as belonging to the Leguminosæ, though it possesses leguminous fruit; in every other respect it seems to belong to Amyridaceæ.

kept in a small outhouse, but had afterwards walked to her accustomed place in the large hut. The Indians invited me to see the infant, and accordingly, provided with some suitable presents, I went. I have before observed that this woman was more lively than the others, and when she saw me approaching her hammock she held the child up, and appeared particularly proud that her first-born was a boy. Nature had here done all. If her deformed body and protracted labour be considered, it is surprising in how short a time after, she could sit up and smile at her baby and at the presents it received from me. She is a Maopityan, and the second wife of a Taruma, the father of the child. Polygamy appears very common, but, in the present instance at least, it is clear that beauty was no motive of choice in the second marriage. The first wife, who has had two children, was a fine-looking Indian.

The new-born child had all the characteristics of the mother's tribe. It was not quite an hour old when I saw it, and the flatness of its head, as compared with the heads of other tribes, was very remarkable. Its size was $14\frac{3}{4}$ inches; the circumference of its head $13\frac{3}{4}$ inches. A female child of the same tribe, not quite 2 months old, measured 17 inches; the circumference of the head $13\frac{3}{4}$ inches; the circumference round the abdomen $14\frac{3}{4}$ inches. A third one, 4 (lunar) months old, measured 23 inches, and was $17\frac{1}{2}$ inches in circumference round the abdomen. In all three cases the profuse hair on the head of such young children appeared to me remarkable.

We had most unfavourable weather during the commencement of our stay at the Maopityan settlement. Georgetown, on the coast, is famed for the severe showers of rain to which it is subject; but the torrents which we experienced on the night of the 15th of July, surpassed in violence anything I had ever witnessed. The noise of the descending rain overpowered the thunder, which could only be heard when the thunder-cloud passed over our head, and clap followed clap. The succeeding morning was fair and cool; and the thermometer, which during the previous rainy days had stood at 70° , now indicated only 69° , a degree of freshness which rather surprised me, as we were not more than 880 feet above the level of the sea, and near the equator.

The latitude of the settlement was $1^{\circ} 25' 18''$ N.,* and its distance, by chronometer (Frodsham's No. 369), $14^{\circ} 37''$ E. of the Taruma place on the Essequibo.† The following table will give the necessary comparison; it rests upon forty observations:—

* This is the mean of 43 circum-meridian altitudes of α (β?) Centauri and γ Draconis.

† $58^{\circ} 6' 14''$ W. of Greenwich.

Period and Number of Observations.	Instruments.	Mean.	Maxima.	Minima.
From July 14th to July 18th, 40 Observations.	Barometer	Inches. 29.098	15th July, 10 A.M. Inch. 29.173	16th July, 5 P.M. Inch. 29.022
	Attached Thermometer .	72°.57	15th July, 3 P.M. 80°.42	17th July, 6 A.M. 66°.20
	Detached Thermometer .	73°.04	80°.50	66°.00
	Wet-bulb Thermometer .	71°.72	75°.70	65°.90

18th.—Our bark canoes being ready, and the women having prepared us as much cassada flour as they could spare in their straitened circumstances, we engaged six men from the village to accompany us to the first Pianohotto settlement, and started on the following morning.

The Caphiuuin was scarcely 15 yards broad where we embarked, and full of rocks, and otherwise obstructed by trees that had fallen across, through which we had, in many instances, to cut a passage for our boats: this, together with the want of skill of the Maopityans, frequently endangered our frail canoes. Indeed the awkwardness with which the Maopityans paddled, drew down upon them the ridicule of our Macusís, who considered themselves very superior boatmen.

Several small rivers joined the Caphiuuin, after which it increased in size, and forced its way turbulently through the mountain chain. We passed Mount Yucawari on the 20th. I estimated its summit at 1500 feet above the river, which was about the average height of the hills we had hitherto passed. The direction of these ridges is by no means uniform, and deviates generally between N. and E., and N. and W.

The flora of the banks of the Caphiuuin exhibited all the luxuriance of the tropics. The scarlet *Isertia*, the blue *Petræa*, the long pendulous flowers of the *Posoqueria*, with its rounded fruits of citron-yellow, and large green, shining leaves; the flowing risps of Aublet's *Carapa Guianensis*; the ant-tree (*Tachigatia pubiflora*), with its upright panicles of yellow blossoms; the splendid *Clusia insignis*, with its large rose-shaped flowers and aspect as if formed of virgin wax, each petal tinged with rose; Aublet's crimson *Eperua*, remarkable for its falcate pods, pend- ing from the trees on thread-like peduncles; the banks of the river, adorned with graceful bamboo bushes and gigantic *Musa- cææ*; numerous palms, and the *Theobroma cacao* growing spon- taneously, the majestic *Bertholletia*—all united to render the picture highly interesting to the botanist, and delightful to the eye. The falls and rapids now became numerous. We halted in the evening of the 20th at the head of Uwiya, the first fall which was of any consequence. The dykes which caused it were

slaty greenstone, and, according to the chronometer, we were then 10 miles E. of the Maopityan settlement.

We passed, soon after noon of the 21st, Mount Caramuzin, about 2000 feet above the river, or 2850 above the sea. It is on the river's left bank, and is in its form more pointed than the other mountains we had passed. Our camp was pitched this night near another fall. The rock was here of greenstone, passing into clay-slate, and, stretching right across, caused the river to fall perpendicularly, as over a mill-dam, into the basin below. Some cavities in the hard rock were very remarkable. They were shaped like soup-plates or saucers, about 8 inches in diameter, and 2 inches in depth, and quite smooth. I was unable to account for their formation. Observations of northern stars gave for the latitude of this place $1^{\circ} 23' 23''$ N., and its meridian distance by chronometer was $13^{\circ} 11''$ E. of the Maopityan settlement.

The following day we lost two of our bark canoes. One ran against a rock and split, and the second sunk; two of the Maopityans went through the heavy surge at the foot of one of the falls, which caused it to be swamped.

We had proceeded only a few miles on the morning of the 23rd of July when our progress was stopped by the large cataract Wamaru Serrika. Here we had to carry both the boats and the baggage over a distance of 700 yards, which occupied the whole day. A barometrical measurement gave me 45 feet for the total height of the fall.

24th.—The difficulties which the navigation of the river presented were still further increased by our not understanding the language of our guides. It appeared that only one of them had been down this river before, and then, as far as we could understand him, he was very young. This man was, moreover, sullen, and not favoured by nature with much discernment. I gave him a seat in my own bark-canoe, which by the Indians is considered an honour, but it did not change his manners. We had scarcely advanced a mile on the morning of this day when another large fall was before us. We had again to unload, and carry the baggage about 600 yards overland. The boats were lowered down the fall, and here I met with a painful accident. Anxious to witness the passage of the corials over the impediment, I crossed a small island, from whence I could observe the manœuvres of the crew. Deeply intent upon what they were doing, I paid no attention to the objects immediately around me, and had placed myself unwittingly and without hat under the large nest of a brownish species of wasp. I must have touched it, and roused their ire. The first intimation I had of the dangerous proximity was the violent pain I experienced from their stings in fourteen

different parts of my head, and, not being able to get the wasps out of my hair, they continued to inflict their wounds. Had I not been ashamed of showing any weakness before the savages, I might have cried out with the pain; which, strange to say, communicated itself to the right arm, chiefly under the arm-pit. I passed a feverish night, and felt the consequence of the stings for some days after. Having passed some more cataracts and rapids, the river became comparatively smooth. It had scarcely increased in breadth for the last 50 miles, and in lieu of mountains, groups of small hills, scarcely 150 feet in height, approached the banks, while the stream itself was studded with numerous blocks of granite of the usual spherical form.

26th.—The trees near the banks of the river were this morning enlivened by large flocks of small monkeys; they consisted chiefly of pisas and yarkis (*Pithecia spec.?* and *Cebus Capuchinus*), and some squirrel-monkeys (*Callithrix sciureus*), and, astonished at seeing human beings passing their abode, they exhibited every attitude and grimace which their agility and curiosity, at the strange sight of us intruders, called forth. We had hitherto been accompanied by a general silence, interrupted only by the noise of falling waters, our own voices, and the splash of the paddles. This day it was otherwise; several feathered songsters raised their voices, discordantly broken in upon by the noise of an assembly of hawks (*Ibycter leucogaster*, Vieill.), known in the colony by the name of bull-dogs, and which, when perched on the summits of the highest trees near the banks, never fail to greet the passing boat with their stunning cry.

A large Coaita monkey (*Ateles paniscus*), resting with its long legs on a curved branch, while it kept its erect position by grasping with its spider-like arms some branch above it, reminded us forcibly (at the distance we were from the animal) of the human structure—the more so as she was a mother, and had a young one clinging to her breast. We had not proceeded a great distance when the howling in unison of half a dozen Araguatos, or howlers (*Stentor seniculus*, Geoff.), resounded like the roar of lions through the surrounding forest. They did not observe us, and we were able to come quite close to the trees where they were sitting: I counted six. Amidst the deep bass of several old ones, was distinctly heard a shrill, fine voice, proceeding from what is called by the Creoles “the singman,” or precentor; no community or group of howlers is without him, and he is naturally distinguished by his diminutive size as compared with the others. So say the Creoles; and although the fact is uncontested that, whenever they commence their dreadful howling, the shrill voice is heard amongst them, we, as naturalists, cannot agree with the woodman, that nature should select one from the rest and

give him a smaller size, that he may act as leader in the discordant concert. It is most probably a female, or a young aspirant who has not yet acquired the sonorous bass voice of the aged.

We had commenced shortening our allowance, and the Indians could not resist the temptation of replenishing the larder. The crack of the percussion cap,* the report of the gun, the cry of the startled singers, and the heavy fall of one of them, was the act of a few moments.

The hollow sound of rushing waters informed us that we were approaching another cataract. We had passed in the course of the morning numerous small hills on our right and left, without any serious obstacle interrupting our navigation, but, on approaching a hill which extended N. and S., we saw another fall before us. The Maopityans call it Karamatahura: it presented a very remarkable appearance, for the greater volume of water flowed about 150 yards along a raised ledge of granite, like a natural aqueduct, in a S.E. by E. direction, about 20 feet above a smaller branch of the river, which precipitated, at the commencement of the ledge, into the basin below, and then flowed gently along the foot of the natural aqueduct, while the waters above were rushing turbulently towards the abrupt termination of the granite ledge, where it again united with the former stream by forming a large cataract. These shelves of granite astonished me by their vastness; the action of flowing water having denuded whole tracts of their earthy covering, they now appeared like gigantic terraces.

The rocks were covered with that strange water-plant the Wirinye, belonging to the genera *Mourera*, *Podostemon*, *Lacis*, &c., and the river having fallen in the course of the last two days they now raised their branches above the water, and were in full bloom. Here I secured a specimen of that kind of fish, of a dark-blue colour, which on the one hand resembles closely the Pacu (*Myletes Pacu*), on the other Pirai (*Serra-salmo niger*),† and of which I saw the first in the river Padamo, a tributary of the Orinoco.‡ The Maopityans call it Umursu, but, with the exception of Sororeng, who had already accompanied me as interpreter on my former journey to the Orinoco, none of our Indians had ever seen one before.

While our boats were being lowered down the cataract (which nearly occasioned the destruction of my own skiff), Mr. Goodall occupied himself with making a sketch of this remarkable fish,

* The Macusi Indians call the percussion caps taki-pang, the sound of the words intimating the explosion of the cap and the heavier report of the gun.

† *Vide* Fishes of Guayana, in 'Naturalist's Library,' vol. i. pp. 225 and 236.

‡ Journal of the Royal Geographical Society, vol. x. p. 241.

of which it is my intention to give elsewhere a full description. Scarcely had we overcome this obstruction and proceeded half-a-mile further when we halted at another fall, where the river, shooting over an inclined plane for the distance of about 400 or 500 yards, formed a precipitous cataract at its extremity. We had again to unload, and as the day was already so far advanced I gave orders at once to encamp at the foot of it.

The black pacu abounded here; our crew waged war against them with bow and arrow and cutlasses—indeed a wholesale slaughter took place, and upwards of twenty were secured. It was quite an enlivening scene; every person wished to carry a prize away, and many a tumble took place, when from over eagerness they paid no attention to the slippery rocks, or when too venturesome the force of the current carried them partly downwards to the foot of the fall.

We made out from our guides that this was the last fall of consequence we should meet with in descending the Caphiwiuin. The barometer showed a descent of 222 feet from the place of embarkation at the Maopityans, which in a direct line is nearly 50 geographical miles from Karamatahura, which makes about 4·4 feet per mile. I formerly considered the Padamo (a tributary of the Upper Orinoco) as one of the rivers the most obstructed by falls and rapids, but the Caphiwiuin far surpasses it. The latitude of the foot of the lower fall was $1^{\circ} 21' 50''$ N. and its longitude $57^{\circ} 16' 50''$ W. of Greenwich. The mean of barometrical observations from 3 o'clock in the afternoon to 6 o'clock in the evening $29^{\circ} 34\cdot9$; attached thermometer $79^{\circ} 7$; detached, $79^{\circ} 9$, from which data the descent mentioned above has been reduced.

27th.—This morning we chased a jaguar that was swimming across the river, but we were too far off to intercept its course. He turned himself leisurely round, throwing a glance at us, and measured the distance our boat was from him, and, no doubt, satisfied that he was safe, he continued his course, bearing his tail curled high above the water.* He ascended the bank by means of a tree that had fallen into the river, and, shaking the water, like a poodle-dog, from his spotted skin, walked leisurely into the thicket without giving us even a second glance. My rifle missed fire twice, to my great annoyance, as I felt most anxious to send a ball after him, if it had only been to make him trot a little faster out of our sight.

The jaguars appear to be very numerous hereabout; it was only yesterday that we saw the marks of their feet near our camp, and a few days previously we saw one crouching on the

* They always swim across the river with their tail cocked up, and we recognized by this circumstance whether it was a jaguar or any other animal that swam before us.

trunk of a tree: when the boat got quite near, it jumped down and scampered into the bush. But our black cook tells the best story, and still trembles at the recollection of his adventure. One night, he says, while lying awake in his hammock, he saw a huge animal who came up close to him, smelling him all over. He feared to move, and seeing a pair of eyes like burning coals, shut his own; but when the beast's snout came near his face he could retain himself no longer, and giving a tremendous shriek, which awoke the whole camp, he jumped out of his hammock, and nothing in the world could induce him to return to it that night. He preferred sleeping on the ground under the tent of the coxswain.

We passed about noon the river Camu (Sun river), which joins the Caphiwiin from the N.N.E., and is nearly of the same size as its recipient. It is now uninhabited, and has its source, as we were given to understand, in some high mountains. After this junction the Caphiwiin turns a point more to the S., and some of its reaches trend even to the W. of S.; its banks are low, and it no longer meanders through small hills as it did yesterday. I estimated its average breadth at about 300 feet.

28th.—An hour before noon we passed one of those temporary huts which the Indians, when on fishing expeditions, or while travelling, erect on the banks of the river, and, miserable as they are, they attest that human beings have constructed them for their abode. We had not seen one since we left the cataract Uwiya, a sure token that ages had elapsed since human beings had travelled up or down this river. Uwiya appears to be the "Ultima Thule" of the Maopityans down the river, and the hut we had just passed "the furthest" of the Pianoghotto Indians upwards, while the intermediate 70 miles was the haunt of the jaguar and tapir, and, as our Indians no doubt believe, the abode of all kinds of hobgoblins and other spirits, mischievously inclined towards the human race.

A small fall, which however occasioned us some difficulty, induced me to encamp. While they were pitching our tents I observed some smoke at a short distance before us, a sight hailed with delight in the wilderness, as a sure token of the presence of man. One of the bark canoes was quickly brought over the fall, and with our precious guide, the coxswain, and Sororeng, we pulled towards the place, and eagerly climbed the steep banks in expectation of finding people. The furious barking of half-a-dozen dogs soon proved that we had not been mistaken.

We found a man, a young woman, no doubt his wife, and a young girl, arrived at puberty, but who, like the poet, seemed to think that "beauty is, when unadorned, adorned the most," and accordingly despised even the fig-leaf. A boy about 13 years of

age, and in the same naked state as the young girl, came out of the wood, curious to see what caused the barking of the dogs, and appeared awfully frightened at sight of my white face. It was a Zurumata family, a branch of the Pianoghotto tribe, who were clearing a new provision-field. Two small panaps, or temporary huts, served them as shelter. The man had all the appearance of a Maopityan, nor was the pig-tail wanting, sheathed in a tube of palm-leaves and ornamented with coloured feathers. He wore below the knee a band of cotton strings, from which hung a large tassel, coloured red. Round the ankles were tied some strips of palm-leaves. The young woman did not differ in her attire from the generality of the Indians; but her *qué-yu*, which is usually made of glass beads, when this so much coveted article is to be procured, appeared to be made of seeds. The other two individuals, as already stated, were naked. This family appeared to be short of provisions, and we understood it to be their intention to return the next morning to their settlement, which they hoped to reach in five days.

The junction of the Wanamu and Caphiuin appeared to be a few miles to the eastward, but as I could not ascertain whether we should find people I was uncertain as to our route.

We returned to the cataract, where the ledge of rocks promised me an opportunity of taking astronomical observations for latitude; but with the exception of some circum-meridian altitudes of Mars and γ Draconis, my object was frustrated by thick black clouds which rose in succession to the N.E. and spread over both hemispheres. Numerous shooting stars, some apparently taking their course upwards, became visible when the opaque clouds did not interfere, and proved that the upper atmosphere was clear. The barometer stood at half-past nine o'clock $29^{\circ} 382$; the attached thermometer $73^{\circ} 4$; the detached thermometer 74° , and the wet bulb at 73° : our latitude was $1^{\circ} 7' N.$; and our meridian distance from the Maopityan settlement, according to the chronometer, $1^{\circ} 13\frac{3}{4}' E.$

29th.—We reached, after three hours' paddling, the junction of the Wanamu and Caphiuin. The former joins from N. by E., while the last reach of the Caphiuin before the junction is N. $81^{\circ} E.$ The united streams, after their confluence, continue their course towards the E. by S., taking ultimately, if the information of the Indians be correct, a more southern course. The Pianoghotto and Maopityans call the two rivers, from their confluence, Caphu or Kaffu. I estimated their united breadth at from 500 to 600 yards wide; the Wanamu is, at its mouth, about 350 yards wide, and the Caphiuin of a similar breadth. According to my observations of last night the latitude of the junction was $1^{\circ} 2\frac{1}{2}' N.$, and its longitude $56^{\circ} 48' 43'' W.$ from Greenwich.

The barometrical observations gave me a height of 540 feet above the sea. From the information which I afterwards procured, I have no doubt that the Caphu is the river Trombetas Oziximina, or Acunhas Cunuriz, which falls in $1^{\circ} 57'$ S., near Obydos, into the Amazon. The junction is, according to Von Martius, 451 Parisian feet (about 480 English feet) above the sea.* The river Trombetas is remarkable as being one of the last passes where the fable of the existence of the Amazons has placed the republic of warlike women, who only once in the course of the year, namely in April, received men into their society. It was at the mouth of this river where, according to Father d'Acunha, Orellana found, in 1542, women fighting among the men; and on my inquiries while travelling at the Rio Negro, that river was always pointed out to me as the one at whose sources the Amazons resided. The upper branches of the river Trombetas were perfectly unknown; large cataracts and the fear of savage Indians had prevented the inhabitants of the lower Amazon from ascending that river to any distance, and for want of better information it was the subject of the strangest stories.† The Caribs of the Corentyne pretended that these women without husbands inhabited the regions near the sources of the Corentyne, which we now know to be at no great distance from the northern branches of the river Trombetas. We have therefore, as well from the S. as from the N., the same traditions that the Amazons of the New World inhabited a central district, from whence the rivers flow northward towards the Atlantic, and southward towards the Amazons. The route of the present journey, which traversed these very regions, has only added to the conviction, that the existence of Amazons was one of those inventions calculated to captivate the attention, and add to the wonders of which the New World was considered the seat. The inhabitants of the central district were perfectly unacquainted with even the tradition of the existence of such a republic, which, I trust, will henceforward be regarded as a mere groundless fable of the dark ages.

We now entered the Wanamu, or, as the Indians at its upper course call it, the Yau-uh; it has, like the Caphiwiuin, yellow, muddy water. Indeed, save when we left the Essequibo, I have not seen a single river with black water. Its current was about

* I consider Von Martius' numbers too high; he gives for Barra de Rio Negro 522 Parisian feet (556 English), a height which Fort San Joaquim does not possess, though it is nearly 300 miles higher up the Rio Branco, which has several rapids and a large fall.

† M. Montravel, in his late Report to the French Government, respecting the expedition up the Amazons, for the purpose of surveying that river, observes, that the inhabitants near the mouth of the Trombetas pretend that it possesses rich gold mines near its sources. The regions through which I travelled did not exhibit the appearance of being rich in precious metals.

one knot and a half per hour; it was studded with blocks of granite and foaming rapids at a short distance from the junction, and we anticipated many impediments in its ascent.

As our provisions were low, we hoped the information we had received of the existence of Indian settlements near the mouth of the Wanamu would speedily be realized, though we began to have our doubts; noon passed without our meeting with any sign of an inhabited place, and on closer inquiry, by means of the few words I had collected of the language of my guides, I ascertained, to our great disappointment, that the nearest village was a journey of eight days from the mouth of the Wanamu. We had been toiling eleven days without interruption, and eight days' journey was yet before us. Reduced to less than a single basket of bread and eighty pounds of cassada flour, we had now to adopt the most rigid economy.

The river as we advanced flowed between hills which approached its banks; their height did not exceed 200 or 300 feet, and as they presented the same outlines to which we had for some time been accustomed, the scenery was monotonous. Rapids were frequent, but by no means of such a height as those of the Caphiwiuin. The banks of the latter river abounded in carapa-trees* (*Carapa Guianensis*, Aublet), Brazil-nut (*Bertholletia excelsa*, H. and K.), and the wild plantain-tree (*Phanakaspermum Guianensis*, Endlicher), not one of which was to be seen during the first days of our ascent of the Wanamu. The nights were foggy and clouded, and a heavy mist generally obscured the sun at his rising, until he reached from 20° to 30° above the horizon, when it cleared, and a strong breeze set in from the N.E. The heat between one and two o'clock was frequently intense, and the thermometer, freely exposed to the sun, rose to 128°. In the morning at six o'clock it varied from 68° to 71°, otherwise the weather had been fair for several days past, and it was evident that the dry season had set in. The river Curiau joined the Wanamu in about 1° 16' N. lat. I estimated its breadth near the junction at 200 feet, and according to the direction as pointed out by our guide, it comes from the N.W. Fifteen miles above the junction I discovered the first block of granite since we left the Essequibo, covered with Indian picture writing. I had in vain looked for such near the large falls of the Caphiwiuin; but as the river was much swollen, it is possible, if there were any, that they might have been covered by the water. At the present locality there was on the left bank of the river a large block of granite about 40 feet in diameter, covered from the water's edge with figures, many of them much worn, and the

* The Indians press out of the fruit an oil, which they use chiefly for anointing their hair.

connection between the adjacent figures effaced ; but Mr. Goodall and myself measured and figured as many as time would permit.

August 3rd.—During the preceding night, when all was hushed, I had caught the sound of falling waters, but as, after proceeding about 2 miles this morning, we saw no fall before us, I concluded I must have been mistaken. About half a mile above our last night's camp (in lat. $1^{\circ} 30' N.$) a river of the size of the Curiau joined the Wanamu on its right bank. Our guide, who appeared the most stupid of all the Indians with whom our travels had made us acquainted, gave me merely a broad ha! for answer when I inquired the river's name; and as I could not obtain anything further from him, I introduced the river under that name in the map. We soon afterwards again heard the sound of rushing waters, and still no fall in sight. At last, after nine o'clock, we found we had not been mistaken, and fall above fall presented itself to our eyes, while the river betokened the difficulties we should here have to surmount.

Little hills, consisting of heaped-up blocks and clothed in verdure, encompass the river, which has forced its way over the granite ledges. We had to unload the corials several times while passing over the impediments which the cataract Zibi threw in our way, and we did not pass it altogether without accident. I had a favourite hunting dog of the Taruma breed, which attempted to swim across the river a little above one of the cataracts, but the current was too strong for him; he was carried down and rose no more. The name of this cataract, Zibi, appears to have fixed itself in the memory of our guide in consequence of the tradition, that the spirit which dwells there demands from every party that passes, a victim as toll. He had spoken of this previous to our reaching it, and our Indian crew greatly dreaded the passage. The loss of the dog did not appear to have satisfied the spirit of the waters, for one of the bark canoes was swamped while ascending the last fall of the series. I saw the accident from a distance, and a pang shot through my heart as I recollected that it contained our last basket of cassada flour: it was, however, most fortunately saved.

We halted a short distance above the great fall, which, according to my observations last night, was in lat. $1^{\circ} 33' 30'' N.$, and 88 miles E. of the Maopityan settlement.

5th.—The crew of one of the boats came in after nightfall without their craft, which, having split in two, they had abandoned, and made their way through the forest. The loss was not great; the only difficulty was how to divide the crew, as our canoes were all overloaded, and the one which I was in was now threatened with a similar fate.

Eighteen days had now elapsed since we left the Maopityans,

and we commenced to look with suspicion on our guide, whose conduct had by no means inspired us with much confidence. This morning, however, we found some floating branches on the river which appeared to have been broken only that morning, or, at the farthest, the evening before. Full of expectation I encouraged the Indians who were in my craft to double the quickness of the strokes of their paddles, and the canoe in which I was, being in advance of the others, we were just turning round a point when I saw a bark canoe with two men and several dogs coming from the opposite direction towards us. Resembling in their attire the Maopityans, I conjectured they were the two men I had despatched two days previous to our departure from the Maopityan settlement to inform the Pianoghotto Indians of our intended visit. Scarcely, however, had the Indians got sight of us, when they turned the head of their boat, and paddling with a swiftness that fear alone could accomplish, all our calling to them that we were friends proved of no avail. Our guide remained deaf to our entreaties to speak to them, though we knew that he spoke their language; and as the other Maopityans, who might have been better inclined, were far behind us, we could only follow the fugitives in the hope of overtaking them, and prevent their spreading any unnecessary alarm. We now saw a second canoe coming down the river, in which there were likewise two men; but, suspecting us as the others had done, they also turned their boats and fled. We were close upon the hindermost boat, when they turned into one of the inlets, where, supposing them to have landed at their settlement, we followed them; but to our mortification we found only their canoes with their hammocks and other things, and the dogs still tied up; the men had fled into the wood. I now forced our guide to follow them with one of our own Indians, and in order to pacify their apprehensions, I ordered the other boats to proceed onwards, and took the lead. After a progress of about 15 minutes, I heard the barking of dogs, and turned into another inlet, where I soon discovered the landing-place of the settlement. I hastened with the greatest eagerness up the high banks, and saw a few huts before me, tenanted only by barking dogs and our guide and the Macusi Indian, who, not being able to overtake the strangers, had arrived a little before us, and found that all the inhabitants had fled, leaving everything behind them. We found the cassada upon the baking-pans, the matappa filled with grated cassada root, a pepper-pot and some fresh cassada on the spot where they had been eating when the news must have been brought to them, all showing that they must have fled in the greatest consternation; they had not even taken their hammocks with them, which I never before knew the Indians to leave behind them.

We again despatched some of the Maopityans after the fugi-

tives in the hope that they might yet overtake them, and had now leisure to look round us and brood over our ill luck. Our position was anything but cheering; there we were, entirely unacquainted with our distance from the next settlement or the direction we should take to reach it, while those from whom we expected information fled at our approach.

The place did not appear like a permanent abode; a small mud hut not quite finished, and several panappes or temporary huts, constituted the settlement. We observed, however, 8 or 10 cutlasses, several new axes, knives, and scissors, all of Dutch manufacture, and an abundance of a coarse kind of beads, but I could not make out what they were made of. Indeed, among all the contradictory information we had received from the Maopityans, it appeared they had spoken truth when they had said that the Pianoghottos traded with the Indians and the Maroon negroes of Surinam.

I gave strict orders to the Indians who had accompanied us not to touch anything of the different articles which had been left behind by the fugitives. Our Macusis and Wapisianas obeyed these orders, but not so the Maopityans, who most ravenously fell on the eatables, alleging as an excuse their excessive hunger. Those whom I had sent after the fugitives returned towards evening without success; they had traced them for some distance, but said they had lost their track. I think the provisions they had seen on arriving at the deserted village was most likely the cause of their early return. I now began to mistrust the Maopityans more than ever, and soon found I was justified in so doing. I had retired to my hammock, when a Wapisiana, whom we called by the name of Moller, and who was the only one who appeared to be on familiar terms with and understood our guides, came with the information that he had overheard them planning to pilfer the place during the night, and then leave us to our fate. They had been occupied since nightfall in preparing cassada bread, and had likewise scraped together what eatables they could lay their hands on. My resolution was soon taken. Mr. Goodall and the coxswain having received their orders, I put an end to the preparations of the Maopityans, and placed them all six in the round hut, and loading our guns before their eyes with double balls, assured them they would be used if they made any attempt at escape. Long after midnight I threw myself into my hammock for an hour, and was up before dawn, the coxswain having the watch from four in the morning. I interrogated him as to whether all was right, and he thought it was; but on inspection I found that three of the prisoners had escaped: fortunately the other three, and among them our precious guide and the chief man of their number, had not been equally successful.

With day-light I was enabled to look about, and found that previous to my stopping their proceedings last night, they had succeeded in pillaging the huts of everything valuable. On our arrival we had counted eight axes and a similar number of cutlasses; two only of the former remained, and hammocks, pakals, with their little treasures, glass beads, &c., were all gone; indeed, they had almost succeeded in making a perfect clearance, and their design as communicated by Moller was placed beyond doubt.

I gave the three who remained to understand that the guide and the other principal man were to remain as hostages, and I threatened to fire upon them should they attempt to escape, while the third was desired to restore the stolen things, and that the two would remain as prisoners until he and his accomplices, whom we knew could not be far off, had succeeded in finding the Pianoghattos and induced them to return to the village.

The one whom we allowed to go free now went several times to the adjacent forest and back, no doubt carrying messages and advice from the prisoners to the three men whom the coxswain had allowed to escape. In an hour's time we saw nearly all the stolen articles returned, and we were told that their three comrades were gone after the fugitive Pianoghattos to induce them to return. One of them arrived about noon in breathless haste, communicating the information that some of the Pianoghattos were coming in a canoe, and he advised that we should allow the guide and the other prisoner to go to meet them and speak with them. This ruse, however, did not succeed; and, taught by our morning's experience, we kept the closer watch over our prisoners.

The adjacent fields abounded in cassada plants, and I employed our Macusís in preparing bread, keeping an account of the number of roots which we used for our most pressing necessity, in order to pay for it as soon as we should meet the owners, or, if this could not be, to leave the payment behind.

Our situation was by no means pleasant, and had it not been for the discovery of the plot, we should have been far worse off. Our hope was built on a friendly intercourse with the Pianoghattos, as sad experience had proved to us that the Maopityans did not intend to act honestly by us from the commencement. All their information with regard to distances proved incorrect; and had they succeeded in escaping during the night with their plunder, which, under existing circumstances, it would have been impossible to replace out of our own stores, they would no doubt have embroiled us with the Pianoghattos, even if these had returned, and who doubtless would have ascribed the theft to us. It was equally evident that the two messengers whom we had dispatched from the Maopityan settlement for the purpose of

informing the Pianoghottos of our intended visit, had never proceeded on their journey, and, most likely, only awaited our departure to return to the village.

The following days passed between hope and anxiety; sometimes buoyed up by the information that traces of the people had been discovered, then again disappointed. The few hours' rest which our close watch over the prisoners allowed us to take in turn was disturbed by swarms of mosquitoes, and to make matters still worse, Mr. Goodall's health gave way, and I myself became unwell. Determined, however, to prevent the escape of our prisoners, I ordered our tents to be set up right across the entrance, so that any person going in or out was obliged to pass under our hammocks. Our own Indians, who equally depended upon our success for their safe return, and whom I knew I could depend upon, were quartered in the hut with the two prisoners, the coxswain and one of the canoemen in a small hut behind, to prevent their breaking out of the hut in that direction; and for keeping us all on the alert, those upon whom the watch fell as well as the rest, we trusted to the swarms of mosquitoes which rendered it next to impossible to enjoy sound rest.

One of the hostages whom we had allowed to start with one of our own Indians in search of the fugitives, returned on the 9th instant with the information that, while stealing softly along, they had heard the cry of a child, and soon after observed a woman squatting under a hut of palm-leaves, trying to quiet her infant. As soon as she became aware of the presence of the two men she cried out to spare her life. Her fears being quieted, she related that the men in the canoes, who had first seen us when we approached, had thought we had come to murder the men and take the women into slavery, and had accordingly fled with the greatest precipitation, taking nothing with them; and as the next settlement was five days' journey off, she being sick was afraid to undertake it, and with her husband and child had remained in the hope that, not finding any person, we would have left the place ere this. The cries of the child for bread had induced her to steal near the settlement, and she had approached it close enough to see me sitting under the tent. She had taken some yams out of the field and returned to the temporary hut. Her husband was absent at the time the Maopityans found her, and she would not return alone, but begged the Maopityans to bring her some bread for the child, which was crying for hunger. I hastened them back with bread and presents; but they soon returned; the fears of the woman must have been re-awakened, for she did not wait for our men, and had again fled.

In order to satisfy myself of the correctness of this account I examined the provision-ground along with Sororeng, and he soon

pointed out to me the marks of recent footsteps. The impression of the child's feet, where the soil had been moistened by the dew, was very distinct, and we followed to the spot where the mother's curiosity had urged her forwards towards my tent, while the child had remained behind: at least, Sororeng drew my attention to the deeper marks of the child's feet, which he ascribed to its remaining standing at the same spot for some time.

11th.—The three Maopityans who, in the first instance, had escaped during the watch of the coxswain, returned voluntarily this evening. They pretended having been in search of the Pianoghottos, and said they had fallen in with the camp of one of the parties on the third day (August 8th), but, unfortunately, the dogs of the strangers had given the alarm, and they had all fled, leaving, luckily for the starving Maopityans, some smoked meat behind.

Our situation was really critical. We had sufficient evidence of several parties, one of which could not have numbered less than twelve persons, having passed our camp in different directions, no doubt spreading the alarm of the arrival of enemies; and that we might easily be overpowered will be evident, when it is considered that our whole party consisted of only thirteen persons and two dogs, of which number the six Maopityans may be, perhaps, considered as so many enemies; at least, I could not trust men who, by their former actions, had shown themselves deficient in a virtue possessed by all other Indian tribes—common honesty. Indeed I had no doubt but they would gladly join any attacking party, in order to share in the spoil and prevent our informing the Pianoghottos of their dishonesty.

Mr. Goodall's indisposition under these circumstances was the more unfortunate. I resolved, however, as soon as he should be sufficiently recovered, to push on towards the N., leaving the baggage behind, and taking only the most valuable instruments of the expedition. According to my observations Demerara was in the direction N.N.W. about 400 miles; and the Corentyne, where it becomes navigable, most likely not more than 60.

13th.—One of the party who was despatched in search returned this afternoon, and brought the joyful news that they had fallen in with people near the small river Iriau, and that two of the Maopityans were coming with them by water. Our joy at this news was great. We fancied our difficulties were now at an end, and our Indians collected round the narrator to hear more of the particulars. The moments appeared hours before the strangers arrived; they consisted of a man, two women, and two children, and we recognized in the Indian and one of the two women the Zurumatas whom we had met near the mouth of the Wanamu. As far as I could learn, by means of imperfect inter-

pretation, they had proceeded, from the place where we had met them near the Wanamu, to some Pianoghotto villages that lie to the northward, to convey the wonderful news of our arrival, and while there, some of the fugitives from the present place had brought the news of our arrival, taking us for others accompanied by hostile Tshikianas. He had told them of their mistake, and volunteered to proceed to this place for the purpose of proving that he had no fear. He said that eight Pianoghottos were to follow him next day to assist us as guides. We were all now most thankful that our affairs had taken such a favourable turn, and in our joy, heaped presents upon our informants; a looking-glass seemed to cause them great delight.

We waited until the 16th for the arrival of the Pianoghottos, but in vain; and, as Mr. Goodall was by this time sufficiently recovered, I considered it better, now that we knew where to find the people, not to delay our departure.

We had been at this place 10 days, which were, I must confess, passed in great anxiety of mind. My astronomical and meteorological observations were, however, not neglected. The latitude of the settlement, deduced from 84 circum-meridian altitudes of N. and S. stars, was $1^{\circ} 40' 5''$ N.; the longitude, by chronometer, $1^{\circ} 35' 55''$ in arc, to the E. of the Maopityan settlement.

The mean of meteorological observations gave the following results:—

Period and Number of Observations.	Instruments.	Mean.	Maxima.	Minima.
August 7th to August 14th inclusive.	Barometer	Inches. 29°258	7th —10 h. A.M. Inch. 29°341	8th. —6 h. P.M. Inch. 29°216
	Attached Thermometer .	81°·39	8th. —2 h. P.M. 91°·56	14th. —6 h. A.M. 66°·92
	Detached Thermometer .	81°·47	92°·0	67°·0
	Wet-bulb Thermometer .	77°·05	82°·9	66°·5

On the 26th of August I boiled the baromeric-thermometer; the mean of the boiling-point was $211^{\circ}093$; the barometer stood then $29^{\circ}278$; the attached thermometer $77^{\circ}54$; detached thermometer $78^{\circ}3$; the wet-bulb thermometer 76° . The wind blew from the S.E. with the estimated force of 4, according to Captain Beaufort's table.

The height of the village, according to the barometer, taking the mean of its observations as above stated, and comparing it with the mean of observations in Georgetown, would be 753 feet.

The weather was generally fine, the morning foggy, and the evaporation amounted on the 13th of August, during the 12

hours of the day (from 6 A.M. to 6 P.M.), to 266 grains out of 1000 grains exposed to the air. The wind blew with considerable force on the 12th of August, as already indicated; but otherwise it was generally calm.

The magnetic intensity was indicated—

Per needle L (a) by 100 vibrations at 82° in $2^m 53^s \cdot 75$.

„ L (b) „ „ 87° in $3^m 42^s \cdot 60$.

3. *Journey from the Pianoghutto Village to the River Cutari, and thence by the Corentyne to Georgetown, in Demerara.*

August 16th.—About the time that we intended to start, the Maopityans, with the exception of one, were nowhere to be found. The Zurumata and his family had likewise vanished, and we considered ourselves in the same predicament as on the 5th instant. I had, however, gathered sufficient information of our road; and as the Maopityan who had remained was willing to accompany us, and said the others would follow as soon as they had set a new bark canoe afloat, we started on our journey, and this the more readily as I expected to meet the Pianoghottos who had promised to come to our assistance.

We descended the Wanamu for about 10 miles, and then turned into the Iriau, one of its tributaries, which joins it on the right. The river was much impeded by trees that had fallen across, and by small rapids; it was scarcely 60 feet broad, and its current strong; our progress was therefore slow. We heard on the morning of the 18th the barking of a dog, and found on the river's left bank the Maopityans, who had just arrived, having walked overland. They told us we had now to abandon our canoes, and continue our journey overland, and that it would take us 5 days to reach the first settlement of Pianoghottos; but, as a kind of consolation, they assured us the Pianoghottos whom they had expected the previous day would, no doubt, arrive in the evening. The Zurumata was with them, and confirmed their account; but here again we were doomed to disappointment. Fortunately for our larder a fine forest-deer, weighing about 70 lbs., was brought in by our huntsman.

19th.—The Zurumata and our villainous guide had taken their departure during night, and only three Maopityans were left, who naturally pretended they knew nothing about the others. The day looked as gloomy as our situation, and we were, after all, reduced to the necessity of abandoning our baggage, and proceeding on our journey. Indeed, were it not for our faithful Macusis and Wapisianas, who accompanied us from Pirara and Watu Ticaba, we should now be quite alone, in lieu of which we

were at least able to save the instruments and documents of the expedition, and some other articles. It was, however, with a heavy heart that the selection of the most indispensable objects was made. There lay the collections I had made since leaving Pirara; we had conveyed them many hundred miles, and, in spite of cataracts and miserable boats, they had reached this spot in safety, only to be left behind with very little hope of seeing them again. How frequently did I reconsider our disposable force, to see whether certain objects of peculiar interest to science, or to myself personally, could not be stowed somewhere! but the few Indians we had at our service were already heavily enough burthened with the instruments, and such articles of barter as were necessary to secure our subsistence and return to the coast.

Towards evening it began to thunder, and so vivid and rapid was the lightning—flash succeeding flash—that the whole vault of heaven seemed on fire, while the peals of thunder followed in such quick succession that the greatest interval between them only allowed me to count four, while eight times out of ten I could only count two or three; and this lasted for 2 hours. There was little rain during the time the thunder continued; but after the electric clouds had passed, which was about midnight, it came down in torrents, and continued the whole night and following morning until 10 o'clock.

20th.—We left the least valuable man in charge of our goods and chattels. Clothes were at a discount, since necessity forced us to limit the quantity of our baggage; and Mr. Goodall accordingly rigged out the guardian of our baggage, a figure made of straw, with some old trowsers, a jacket, a pair of boots, and a hat, giving him, with artistic skill, the caricature resemblance of a gruffy old gentleman. A roof of palm-leaves being constructed over our baggage, we left it and departed.

We had to cross the left bank of the Iriau, which from the heavy rain was rising rapidly. A tree that was lying across the stream was partly under water, and moreover in an inclined position, so that I feared for the safe passage of our Indians with their burden; but they all reached the bank in safety.

Our path led us over hills and through swamps abounding in the graceful uassa-palm (a species of *Euterpe* or *Ænecarpus*), the upper column of which contains the rudiments of the leaves, and affords, like the *Euterpe oleracea*, an excellent vegetable. We may probably be accused of barbarism for destroying thirty or forty of these graceful palms to provide ourselves with a dish of cabbage; but hunger has few scruples, and must plead our excuse.

21st.—Shortly before noon we reached a small stream running

to the N.N.W., and consequently in a contrary direction to those we had hitherto crossed. We had now left the basin of the Amazon. Though the hills we passed over in the course of the morning were somewhat higher, none of them exceeded 400 feet, and those which formed the "*divortia aquarum*" were scarcely 150 feet high. A walk of a few minutes brought me to an abandoned house, which my observations placed in lat. $1^{\circ} 49' N.$, and $3' 14''$ in arc, E. of the Pianoghotto settlement at the Wanamu; we therefore crossed the division of the two fluvial systems in lat. $1^{\circ} 48' 30'' N.$, and in long. $56^{\circ} 30' W.$ of Greenwich. The mean of the barometrical observations, compared with the mean in Georgetown, gave for the height of the abandoned settlement 794 feet.* We found evident marks that people had been here very lately. A parcel of beads were hanging up in the hut, and a fine large cutlass of English make, with the old mark G. R., and the crown over the letters, was hid between the leaves of the hut. The adjacent forest abounded with the majestic *Bertholletia*, which bears the delicious Brazil-nuts. They were bearing young fruit, but many of the last season were lying on the ground, and afforded our Indians and ourselves a great treat. I found, while returning from my astronomical observations, that the coxswain had erected our tents beneath one of those giants of the forest, which could not be less than 100 feet high before it branched out. I arrived too late to prevent him from doing so, but I really feared an accident might happen if a heavy wind should shake one of the fruits off, which are, when full grown, as large as a child's head; and so it happened, for, while Mr. Goodall and myself sat at dinner, the thunder-storm, accompanied by a whirlwind, swept over the place, and four of the fruits, with a shell as hard as that of the cocoa-nut, came down, one of which fell near where I was sitting with such force that it partly buried itself in the ground.

The next morning we had to ford a river about 80 feet wide, which the Maopityans called Aramatau. Our route was more hilly. The valleys were as swampy as they had hitherto been, with here and there large blocks of granite half buried in the ground. The three Maopityans who, contrary to expectation, had remained with us, had told Sororeng that we should this day (August 23rd) reach a settlement of Pianoghottos. They were, therefore, directed to start an hour before us, to prevent any apprehensions and further flight of the Indians. Indeed, we

* The data were—Barometer 29.195 inches.
 Attached Thermometer $74^{\circ}.04.$
 Detached ditto $74^{\circ}.33.$

The wet-bulb thermometer showed, from six in the evening to half-pasteight next morning, no difference with the detached thermometer.

found sufficient evidence that the fugitives from the Wanamu had taken their road in this direction, and, no doubt, spread the alarm of the arrival of the Tshikianas. We followed at our usual time of starting, and had to cross several hills from 500 to 600 feet high.

Various were our conjectures as to whether we should find any people to-day, and how they would receive us. A cry of astonishment from some of our Indians, who had kept up with me, attracted my attention; a recent encampment was before us, the fires still burning—an Indian pot, which evidently had been emptied in haste, as part of its contents was lying on the ground—a bunch of plantains in a corner—and, what might greatly have alarmed us, a pool of blood near one of the huts—all combined to make us believe that the three Maopityans, on coming up with the encamped Pianoghottos, had again put them to flight. The blood, on closer inspection, proved to be that from a bush-hog, of which we found some remains. Nevertheless these signs were by no means calculated to soothe our apprehensions, and we redoubled our pace, anxious, if there were a settlement before us, to ascertain whether it contained human beings or not. After crossing a hill about 500 feet high, we ascended another of about half that height, and saw before us a cleared space several acres in extent, being the provision-fields of the settlement. All was silent—not the barking of a dog nor the sound of a human voice. I feared our worst apprehensions were again realized. Three huts now came in sight, and “Thanks to God here at least are people” burst from my lips as I saw a number of athletic men before me. I hastened towards them, and tendering my hands received their ready grasp, and was really overjoyed at the hearty welcome.

It appeared our Maopityans had met a hunting party this morning, and, after having partaken with them of their morning meal, during which they found time to explain our objects, they all proceeded without delay to the settlement to give information of our coming. I had seldom seen a finer set of men than those who now stood before me; some appeared to be 5 feet 6, and 5 feet 8 inches in height; their limbs strong and muscular. In their attire they resembled the Maopityans. That important piece of head-dress, the queue, was attended to with such neatness, that it would have done honour to a Parisian coiffeur of the old régime. The hair of the hinder part of the head was all gathered up into the queue; that on the forehead was cut rather short, with the exception of two tufts sweeping from the ears towards the face, much in the fashion of our gallants who are not graced with the head of an Apollo. Neither male nor female were painted in lines, but their whole body, with the exception

of the face, was covered with roucou, or red paint. The men wore a profusion of beads round their wrists and across their shoulders, and, like the Zurumata, a band of cotton below the knee, with a long tassel hanging from it. The ankles were tied with strips of palm-leaves, ornamented with red and black paint. Their waist was girded with a broad piece of bark, from which their waistlap was suspended. Almost every man wore one of those combs which we first saw among the Maopityans; they were tied to a string, and hung round the neck, so that they fell upon the breast. The females did not wear this peculiar ornament. The bows and arrows of these people were long, the former strung like those of the Maopityans; but that formidable weapon for close fight, the war-club, as among the Maopityans, was not used. The females were less favourably gifted by nature than the men; and of ornaments, if I except their own manufactured beads, they wore but few. As if fashion were here reversed, the females had shorn their hair short, which did not tend to improve their looks; two, however, had long hair, which they wore in queue like the men.

They brought us presents of sugar-cane, pine-apples, cashews (*Anacardium occidentale*), and some new-made bread, for which I gladly gave them some glass-beads and fish-hooks. The settlement consisted of three huts, a round one resembling in its structure those of the Macusís, and two open sheds. With the exception of dogs, and some fowls of a pure white colour, they had but few domestic animals.

My inquiries were now directed towards the continuation of our route; and, from what I learnt, I have no doubt that the Curuni, or Curuwuini of the Pianoghottos, and the Curitani of the Maopityans, is one and the same river. Their next neighbours to the E. are the Cokoipityans, or Harpy-eagle Indians; and 5 days' journey to the eastward are the settlements of the Mekurus, or Maroon negroes of Surinam. The Pianoghottos trade with the Maroon negroes, and give, in return for axes, knives, and cutlasses, which we saw they possessed in abundance, hunting dogs, waistlaps, hammocks, and cassada-graters.

The small stream which runs at the foot of the mountains flows into the Cutari, which we crossed near its source on the 22nd of August. The Cutari joins the Curuni; both are said to be of equal size.

25th.—With the exception of some young puppies and the fowls we are again the sole occupants of the place. I had yesterday a long palaver with the chieftain, in which I desired him to send his people for as much of our baggage as they could convey, and, as I accompanied my request with a handsome present to himself, and a promise to pay his people, he consented. At

daybreak this morning I found the whole village in motion; men, women, children, and dogs all wandered out, proving that they had not acquired sufficient confidence in us to leave their women and children under our guardianship.

The three Maopityans, whom I had paid for their services, returned with them. I likewise sent payment to a fourth, who I knew had failed to accompany us further only in consequence of a bad foot; but I thought I punished the other two very leniently by merely withholding their payment. Seven days were likely to elapse before the people returned, and as I resolved on descending the Cutari, the coxswain received orders to prepare the necessary number of bark canoes for our navigation to the coast.

As far as we could understand, there is a tradition among the Pianoghottos that, once upon a time, but long since, Caribs came up the Cutari, and one of the Indians, who knows a few words of the Dutch Creole language, from his intercourse with the Maroon negroes, said, that after descending the Cutari for 10 days, people are again met with, though he did not know to what tribe they belong. His imperfect knowledge of the Creole language did not give me sufficient confidence to rely implicitly upon his information.

This settlement is pleasantly situated; it stands on the summit of a hill, which, by a barometrical measurement, rises 216 feet above the small brook, that, higher up, forms some fine cascades. The summit is a circular plain, about 800 yards in diameter, and has been cleared by the Indians for their provision-grounds, in which they grow cassada, plantains, and bananas, yams, sugarcane, pine-apples, &c.; all of which appear to thrive equally well in the yellow soil.

There is another settlement about half a day's journey farther to the W., which lies on the Cutari, where we intended to embark; and the coxswain was sent to search for trees in the vicinity for the construction of our craft, while the remainder of our crew were busily employed in preparing bread for our journey, as I had bought a whole field of cassada from one of the Indians before he left.

28th.—Mr. Goodall and myself were taking our breakfast this morning, when I saw a strange Indian stealing round the large hut, wistfully looking at us. When he became aware that I had observed him, he approached us uttering what I took to be a salutation. All at once he squatted on the ground, covered his face with his hands, and broke out into such a strain of lamentations that we were quite surprised. Our Macusí Indians collected round him, and appeared equally astonished; but their curiosity had no effect upon him, for he continued his lamentations,

his whole body appearing convulsed from their excessive violence. Each of his words was twice repeated in a chanting tone, first slow, and then with a strong intonation, and, as they generally ended with a vowel, the effect was by no means inharmonious. Thus he continued for about twenty minutes without interruption, when he rose, wiped his eyes, and addressed me again in his language, of which I did not understand a single word. I had now more time to look at the individual : he was young, and not so tall as the generality of the Pianoghottos I had lately seen, and of a slight but well-proportioned figure ; he was entirely daubed over, except his face, with red paint, and on the breast he wore a comb ; his waist was girded with bark, to which the waistlap was fixed, the red colour of which was relieved by strips of palm-leaves ; he had neither bow nor arrows, merely a short Dutch knife in his hand. He directed his looks solely towards me, and did not deign to throw even a glance at the Macusis round us. His agitation had not yet subsided, and he continued to tremble, either in consequence of his previous lamentations or through fear. A present of some trifles reassured him, and he now gave me to understand that he was hungry. Our huntsman had been fortunate enough to shoot a wild hog the previous day, and with a large piece of meat and a cake of cassada-bread he returned to the wood and disappeared, I suppose, to carry the news of what he had seen to his companions, as he pointed eastward and showed the fingers of his hands, making at the same time a motion as if that number were coming.

29th.—I was rather astonished this morning at seeing Mr. Goodall out of his hammock earlier than he was accustomed to be when not *en route*, and his loud speaking to the Indians led me to suppose that he had been disturbed. I was soon made acquainted with his grievance : legions of ants had directed their march through his hut, and a detachment had assailed him in his hammock and driven him fairly out of it. The chief column of the marching army of ants was about six inches broad, and until nine o'clock they marched on without intermission through the tent, besides which there were several branches of minor extent.

I now examined my own hut more minutely, and observed there several other columns, but of less breadth, that continued marching uninterruptedly until the heat of the sun caused them to retire into their caverns. Indeed the whole open space in front of the huts was traversed by numerous columns, carrying away towards their burrows crickets, spiders, cockroaches, and other noxious insects, which they must have surprised during their nocturnal rambles or hunted out of their holes. The ant was small, and without those prickles which distinguish the genus *Atta*, or Cushi ants of the colonists. They were, probably, a

small species of that kind which is called the hunter, or yager-man, and of which Mrs. Carmichael has given such a lively and interesting description.

A party of Indians arrived about 10 o'clock, and we recognised among them the one who visited us the previous day. An elderly and good-looking Indian, who appeared to be the chieftain, closed the party, which consisted of ten individuals. He came towards me, and uttered a similar salutation to the one yesterday, and then pointed to the hut, where he took his seat, and, accompanied by the other Indians, they all broke out in lamentations in the same manner as the young man. The wailings over, the chieftain rose and began to converse. In the absence of the inhabitants we did the honours of the village, and placing some meat and bread before them, they were soon engaged upon it. But now came the question, which they soon rendered intelligible by signs:—What is in those boxes we see before us? and nothing less would satisfy their curiosity than opening the chests and displaying their contents. The lot fell first on my own canister, that being of larger size. My military appointment as colonial aide-de-camp raised great exclamations of wonder, no doubt in consequence of the silver lace upon it. I have remarked that among all the Indian tribes I have visited, silver has more attraction for them than gold. Most of the Indian languages have a name for the latter, but for silver they have adopted the Portuguese word "*prata*." In the Macusí language gold is called *carucuri*.

My large telescope proved of great interest to them, but a still greater sensation was caused by the sight of our fowling-pieces. 'Arquebusa, arquebusa!' escaped from almost every lip, and women and children ran away crying when we took one of them up, fearing it might be fired off; but I refrained from causing such a shock to their nerves.

The dress of our visitors did not differ from that of the other Pianoghattos. There were three females among the party, but none of them more favoured with good looks than the ladies we had previously seen. A kind of stays (at least I can find no other name for that peculiar article of dress), which, of smaller dimensions, we had already seen among the Maopityans, reached from mid-way of the back for about eighteen inches downwards, and kept their figure upright. It was made of seeds of the same kind as we had previously seen. Large strings of the same description of seeds were fixed round the upper arms and wrist, and when their apron was attached to the stays, there hung a large tassel, also made of these seeds; each string terminating with the hard shell of a nut. Two of the females wore their hair in a queue, the third had it cut short.

I had now an opportunity of learning the mode by which they manufacture their beads, which is so ingenious that I must describe it. These seeds are of a shining black, and almost twice as large as hemp-seed; they are first perforated by means of a piece of hard wood, and while fixed to the wood, the lower end is rubbed briskly over a rock (decomposing gneiss), which takes off the pointed part of the seed; it is then reversed, and the same process repeated, after which they are strung upon a thread. If a considerable quantity is thus prepared and strung together, they take another kind of rock (decomposing mica slate), which they pound coarsely, and then, having fixed firmly one end of the string of beads and holding the other end in the left hand, they take, in the right, a quantity of the pounded stone, which they rub up and down the seeds till these have acquired an uniformly cylindrical shape. The tree which furnishes the seeds is of a large size, and, when young, has its trunk and branches, as also the mid-rib of the leaves, covered with prickles; the leaves are without stipules, lanceolate, abruptly pinnate, with pellucid dots, and of an aromatic pungent taste, which is likewise peculiar to the wood and branches: the seeds are shining, and have a testaceous integument. Though I have not seen the inflorescence of the tree, nor the manner in which it bears its fruit, I have little doubt that it belongs to the *Xanthoxylaceæ*. The seeds have a very remarkable taste, almost resembling spermaceti. The Pianohottos call them 'were,' and, as already observed, use them as a substitute for beads. The females make their short aprons of them, which constitute their full dress, and when finished, fringe them with the horny seeds of another tree (*Vantanea Guianensis*), which are much larger, and make such a rattling noise at every movement of the wearer, that the approach of a female is heard long before she comes near. Indeed, when they go to fetch water from the brook, which they always do in company, the noise they make is both great and peculiar.

The rock which they use for grinding, and which is decomposed gneiss, is called Were Kitto; the other, for polishing and rounding the seeds, called Tzai, is a decomposing mica slate.

We soon made great progress in becoming acquainted with our visitors, and their curiosity at our doings became almost troublesome; besides which, they had a custom which did not agree with our reduced stock of articles for barter, being uncommonly covetous of whatever their eyes rested upon. To keep them in good humour I was frequently obliged to encroach upon our store of glass beads: indeed I have seldom seen Indians among whom the men have shown such a decided love for beads—even knives appear to have less attraction for them; and as for combs, that article in so much demand among the Macusís, they do not

care the least for them, well knowing that they are capable of making a substitute for them which answers all their purposes. By promising them some beads I easily induced the chieftain and some others to sit or stand to Mr. Goodall for their portrait. He considered them, however, the most fidgety of all the Indians he has depicted—they could scarcely remain in the same position for a moment. The old chieftain has certainly the most characteristic face among them. Although he is of no great stature, being only 5 feet 2½ inches, he is portly and well made. His face has a thorough Indian expression, the forehead receding, and the eyes so oblique that he can almost look upwards without bending his head back. Another peculiarity, in which almost all the Pianoghotto share, is the great depression on the side of the head, below the parietal bone, and between the outer angle of the eye and the ear (*os sphenoides*). The ear is uncommonly large (3 inches in this individual), which I might in this instance have ascribed to his wearing pieces of bamboo in the ear, if it were the laps or *lobuli* which determined the size of it. The ears of a boy who was 4 feet 7 inches in height, were 2 inches and 7-10ths in length, and 1 inch and 5-10ths in breadth. The waist was small, the young men being seldom more than 2 feet 3 inches round; but this may be ascribed to their wearing, from their earliest youth, tight girdles, about 6 inches broad, made of the bark of a tree—a custom which must be injurious to their health. It appears they are as vain of a small waist as any fair lady of European birth and boarding-school education. It was ridiculous to see how they contrived to make their waist appear smaller, by drawing in their breath when I came to measure that part of their body.

Their language has many words similar to the Macusí:—*ina*, yes; *seni*, this; *amoré*, you; *urupa*, bow; *purau*, arrow; *weh*, sun, &c., are the same in Macusí and Pianoghotto. They call the sun *weh*, like the Macusí, but the moon *nuna*, like the Caribs, and a paddle *pura*, like the Wapisianas: indeed it appears to be a language much intermixed with other words.

The custom of each tribe of Indians having their own names for the adjacent tribes, as also for their chief rivers and mountains, renders it very difficult to identify the said tribes and rivers, &c. Thus the Maopityans, whose name is a Wapisiana word, are called Mawakwas by the Tarumas, and Tziraus by the Pianoghotto, who call themselves Pianohutto; the Tarumas, Zarumas; the Atorais, Orais, &c. The river Wanamu is called Pianoghotto by the Tarumas, and Punama by the Pianoghotto.

Towards the E. from our present abode, it appears dwell the Orokoyanna (Parrot Indians), the Hackuyanas and Mekuros, or Maroon negroes, inhabiting the affluents of the Marowini; towards

the S.S E. the Tshikianas, who inhabit the banks of the Caphu, and who are described as warlike; near the sources of the Wanamu, at a distance of five days' journey, are the Drios, a sister tribe of the Pianoghotto, a small number of whom live likewise in a village only a few miles further N. from hence. Far to the S.E. reside the formidable Maipurishiannas, or Tapir Indians, who are described as cannibals, and who use the skulls of their enemies as drinking vessels; towards the S.W. reside the Tunayanna (Water Indians); and farther westward the Carawayanna, the Barakuty, or Barokoto, and the Woyawais. The W. appears uninhabited. On my mentioning the names of the Arawaak and Waraus, they pointed to the northward.

The mode of singing among the Pianoghottos is very remarkable: one begins, who, in a voice and manner that we would call reciting, gives utterance to his words in short phrases and in a plaintive tone, while the others, however many they may be, accompany these words by humming a plaintive melody. They are the instruments that accompany the recital, as in some of our melo-dramas. I greatly regretted not knowing their language, that I might have understood the purport of their peculiar song.

31st.—A great number of the Indians returned this day with some of our baggage, and we subsequently purchased some of their curiosities. The greatest admiration is due to the waist-laps of the men, which are so firmly woven of indigenous cotton, that they would do honour to a European manufactory. They are the handiwork of the Pianoghotto and Drio dames. Their spindles, although simple, and the circular piece at the end, which sets it in motion, rather coarsely executed of bone, are, nevertheless, very neat, and terminate in a piece of bone very neatly cut out, through which the thread is conducted. A pair of Pianoghotto ear-rings would prove rather too ponderous for our European ladies to have a chance of becoming fashionable. They are made of the large teeth of the waterhaas (*Hydrochaerus Capybara*, Desm.), and provided with an ingenious spring, which keeps them fast in the ear. Their baskets, or zumpas, on which the bread is set before the men when taking their meals, are very neatly made, exhibiting the Grecian pattern. Their arrows are well made, and richly ornamented where the feathers are tied to them; and some of their bows, made of letterwood, were from 6 feet 8 inches to 6 feet 10 inches in length.

September 1st.—We broke up our encampment and prepared to leave this settlement, in order to proceed to the next place, where they were preparing the bark canoes. We had been here nine days, and though all the baggage had not yet reached, nor was likely to reach us, I did not wish to delay our departure. The prolonged stay had enabled me to make a series of meteorological

logical and astronomical observations, of which the results are as follow :—

RESULTS of One Hundred Meteorological Observations.

Period and Number of Observations.	Instruments.	Mean.	Maxima.	Minima.	Remarks.
August 21st to September 1st, 100 Observations.	Barometer . . . Attached Therm. . Detached Therm. . Wet bulb Therm. .	Inches. 29° 074 80° .82 80° .96 76° .42	30 Aug. noon. In. 29° 139 29 Aug. 2h. 30m. 90° .44 91° .40 83°	Inches. 29.028 65° .12 65° .60 65° .1	Weather generally fine, with slight airs from the E. and E. N.E. On the 27th August, thunder in the W.—Height of the village above the sea, 940 feet.

I found the latitude of the place to be $2^{\circ} 1' 40' N.$, and the longitude $56^{\circ} 28' 20' W.$ of Greenwich. The evaporation amounted during the twelve hours of day to 371 grains out of 1000 exposed in the morning. During the twelve hours of night (the vessel placed under the tent, which was open at its sides) it amounted to 18 grains.

I have already observed that the settlement was 216 feet above the river Cutari, here about 24 feet wide. This small river forms a number of fine cascades, and the rock over which it precipitated itself was a very coarse granite.

The path to the neighbouring settlement, which is inhabited by Drios, led over a continuation of small hills, the highest of which was perhaps not more than 250 feet. The Brazil-nut tree, or Toka, as the Pianoghottos call it, is very abundant. Like many tropical trees, it was shedding its leaves, and the path was thickly covered with them.

We crossed the Cutari after a march of three hours; a farther march of half an hour brought us to the settlement. Our canoes were not in so advanced a state as I could have wished for the sake of despatch; the bark does not always part as easily at one period as another, and several trees which had been cut down proved useless for our purpose.

The following day we had a visit from some Drios, who reside at the head of the Wanamu. The false alarm had reached them, and they proceeded *en masse* to the place from whence their countrymen had fled at our arrival. Here the mistake was explained to them; and some of them, anxious to see white people, did not mind the journey of five days out of their way to satisfy their curiosity. They were tall and well-made men, from 5 feet 5 inches to 5 feet 7 inches in height, and had ornamented their bodies by incisions, like the South Sea islanders. They were the first whom I met in Guayana who ornamented their bodies in this manner. Otherwise they were dressed like the Pianoghottos; and following their custom of painting the whole body red, and

allowing the face to remain of its natural colour, they have, like the former, rather a ghastly appearance. In some instances, however, they paint half the face red. I presented them with combs, fish-hooks, glass-beads, &c., and they departed shortly after, greatly satisfied.

As far as I could understand from these people, who corroborated the account received previously from the Pianoghotto chieftain, the Maroon Negrões on the Marowini and its western tributaries are very numerous. They live in large villages, in huts like those of the Indians, and each village has a chief who presides over it.

These Maroons are the descendants of the fugitive negroes, who, forced by the cruelties to which they were subjected, fled as early as the commencement of the last century into the forests, and settled first near the rivers Surinam, Saramaca, and Copename. Under the command of chiefs, whom they selected from among themselves, they cultivated sufficient land for their subsistence, and made frequent incursions into the neighbouring plantations. The colony was obliged to send several expeditions against them, which, ill-conducted, failed; and their number increased considerably, when, in 1757, the slaves of the plantations near the river Tempati revolted and joined the rebels.

The colony was under the necessity of entering into a treaty with them in October, 1760, according to which they were acknowledged as free, and bound themselves to assist in defending the colony, and to deliver up not only the slaves who had deserted to them since the 14th of October, 1759, when a preliminary treaty was signed, but likewise every other slave who should subsequently make his escape to their territory. The colony engaged to pay an annual tribute, or as, in consideration for the feelings of the colonists, it was called, annual presents.* Their number was estimated, in 1760, at 20,000, which was no doubt an exaggeration. From Anka, where their principal camp was formerly situated, and where the Dutch colony maintained a resident, they have in time advanced farther to the S.E., and chiefly to the S.W., where they are settled near the river Tapanoni, the south-western branch of the Marowini. Our Drios and Pianoghattos are

* These articles were signed at the plantation Rama, opposite the negro camp, and sixteen of the chief captains of the Maroons were present. It is related that they swore to keep the treaty, the obligation being solemnized according to their manner; for this purpose a small quantity of earth was mixed with water in a calabash, and each of the contractors having made an incision in his arm for the purpose of procuring some drops of blood, it was mixed up with the earth, of which the white deputies, as well as the negro chiefs, were obliged to drink, in pledge of their faithful adherence to the contract. The name of the principal chief was Araby, and his authority was generally acknowledged by the Bush or Maroon negroes all over Surinam. They have since remained quiet, and, as far as I know, have fulfilled their engagements.

their matties or friends ; nevertheless the Indians, and especially their better-halves, complain sadly that they drive very hard bargains, and are uncommonly sparing in their dealings in glass-beads :—our liberality in this article won their hearts.

It was difficult to ascertain the number of Maroons near the Tapanoni : five of the Drio Indians pointed to their fingers and toes, and then carrying with violent gestures their hands to the head, pointed to their hair, by which they wished to impress twenty times more than they had hairs on their head.

On the 5th of September the coxswain announced that our bark canoes were ready. While felling the copaivi and locust-trees he had been assisted by some of the Pianoghottos, who, as Jason related, broke out several times while working with him in lamentations similar to those of the first Pianoghottos who came to visit us. Sororeng understood that a tradition prevailed among them that the arrival of the first white man betokened the extinction of their race. If that be the case, we have to admire their hospitality, which was no way diminished by any angry feelings against those who brought this dread tradition so forcibly to their minds, and rendered the period of their extinction definite.

One of the greatest ornaments of the forest round us, is a lofty tree covered with a multitude of pink blossoms. The Drios call it Maipuremu ; it proved to be Aublet's *Vantanea Guianensis* (Aub. p. 572, t. 229), which, in consequence of the imperfect account given of it, has been shifted from its place in the natural system. The peculiar formation of the anthers, and the drupaceous fruit, show it to belong to *Humiriaceæ* ; and it is, according to Mr. Bentham, very nearly allied to *Helleria* of Von Martius. The drupes are furrowed like the stony seeds of our peaches, but they are twice as large. The Indians cut them in halves, and wear them as ornaments, particularly the children.

Not more than half of our baggage had arrived, and, as misfortune had decreed it, the salt, and our tent-covers, and a great part of my collections remained behind, nor could we induce any of the strange Indians to undertake the long journey a second time. I therefore resolved on departing the next morning. Thirty circum-meridian altitudes of northern stars gave me for the latitude of the place $2^{\circ} 3' 30''$ N, and the chronometer indicated that it was $6^{\circ} 19'$ in arc, to the W. of the Pianoghotto village, consequently in longitude $56^{\circ} 34' 39''$ W. of Greenwich.

I adopted this place of our embarkation as a new starting-point for the chronometrical distances in our journey to the sea-coast.

6th.—One of our new bark canoes had split during the night, and the necessary repair delayed in some measure our departure. The Drios had brought us what provisions they could spare, which unfortunately consisted of yams, a very bulky article. One of the

Indians, however, consoled us with the assurance that after 10 days' journey we should again find inhabitants.

Before we started, I walked once more to the settlement, our tents having been erected at some distance from it. Not a soul was to be seen: they had departed in the morning. Their apprehension that we might perhaps carry some of them off with us, no doubt induced them to retreat before our departure took place.

We embarked at noon in five bark canoes. The Cutari was scarcely more than 30 feet in breadth; quite shallow, and so impeded by trees fallen across it, that parties had been occupied the two previous days in cutting a passage for our craft. Nevertheless, we made but slow progress; and after three hours' paddling were only a mile and a-half in a direct distance from the place of embarkation.

10th.—The history of the preceding five days may be comprised in a few words—our advance slow, and connected with unceasing labour. It appears the Cutari is only navigated when its bed is full to overflowing, and none of the trees thrown down by the fury of the winds or torn off by the torrent, which were now lying across the river, had been cut through to admit even the passage of such small craft as ours. Every morning regularly we despatched half of our party in advance to cut such trees as offered the greatest obstacle, while the rest of us followed about noon. The river is monotonous: its banks offer scarcely any plants of interest to a botanist. I observed a few cacao or chocolate-nut trees, with ripe fruit on them, and numerous *Bambusacæ*. But the river itself abounds in *Haimuras*, and we this evening caught seven in the short space of an hour. One of the Indians was very severely wounded in the thigh by one of these fishes.

11th.—The Cutari took a more western course, deviating in its direction perhaps one or two points on each side of W. It was increased to a breadth of about 80 feet, frequently crossed by ledges of granite, and impeded by rapids. We arrived by 11 o'clock at the junction of the Aramatau with the Cutari. We crossed the former river on the morning of the 22nd of August, while walking from the Iriau to the Drio settlement. It is, near its mouth, about 20 feet wide; and the united rivers are about 500 feet wide, and take a N.N.W. course. About 2 miles from the junction commence a series of falls and rapids, of which the largest is from 12 to 15 feet high. They extend N.N.E. for about 2 miles; after which the river again flows N.N.W., and at the distance of 4 miles from where it received the Aramatau, joins the Curuni, forming at the junction two large falls.

I have related in my *Journey to Esmeralda** that the river

* See Journal of Royal Geographical Society, vol. x. p. 240.

Kundanama joins the Padamo in a similar manner, and what is the more remarkable, the recipient is there free of falls. In the present instance both rivers are impeded at their junction by extensive dykes, which consist of granite composed almost entirely of red felspar. These rocks were more or less covered with *Podostemaceæ*; and the pretty *Mourera*, with its lilac blossoms, presented a very pleasing appearance among the foaming waters.

We observed numerous Pacus, apparently of a different species, or perhaps merely a variety of the common Pacu (*Miletes pacu*).^{*} Their back appeared black, and their sides reddish; but as we did not succeed in procuring one, I could only judge of them from seeing them swimming in the limpid stream. We were highly amused at the Macusí, Carutshi. A large sting-ray (*Trygon garrapa*)[†] was lying partly concealed in the sandy bottom at a spot where the river was shallow, and, anxious to procure it for his dinner, he took his paddle, and, standing up in the boat, struck it on the head. This rough treatment appeared to rouse it from its lethargy, and with one leap it sprang out of the water directly into the boat where Carutshi was standing, who, nearly as quickly as the fish had jumped in, jumped out into the water, and it was some time before he could muster sufficient courage to attack the sting-ray, which so unceremoniously had taken possession of the boat, much to the merriment of the Indians who witnessed the affair. I could scarcely have thought it possible that an animal so unwieldy in appearance, possessed sufficient agility to leap from its hiding-place under the water, at least 18 inches above the surface, into the canoe.

The Curuni, as far as we could see up its last reach, before the junction, appeared, like the Cutari, to be studded with rocks. It comes apparently from the E.S.E., and, from what we heard at the Drio settlement, it has its source near those of the Tapanoni, the western branch of the Marowini. Its upper course is inhabited by the Eagle Indians.

According to my observations of N. and S. stars, the junction of these two rivers, of equal breadth at their confluence, takes place in latitude $2^{\circ} 20' 50''$ N.;[‡] and the chronometer showed that we were $7^{\circ} 52''$ in arc W. of our embarkation, the direct distance of which was S. 25° E., 19 miles, and we had required 6 days to accomplish it. The barometer, as compared with its height at the coast, showed we were 612 feet above the sea.

It smelt round our camp like an onion-fair. That liana which smells so strongly of garlic, grew in abundance round us, and a

^{*} Fishes of Guayana, in Naturalist's Library, vol. i. p. 236.

[†] Fishes of Guayana, in Naturalist's Library, vol. ii. p. 182.

[‡] This is the result of 65 circum-meridian altitudes of 34 and 38 Sagittarii, δ Cygni, α Pavonis, α Cygni, and α Cephei.

great many of the branches having been cut to clear the spot, the smell was really oppressive. I have met with it frequently; but have not been fortunate enough to find it either in blossom or bearing fruit, in order to determine its character. I have no doubt that the Powis (*Crax alector*) feed upon the berries or the leaves of this ligneous twiner, as the flesh of that bird, at certain periods, tastes strongly of onions.

12th.—The united rivers presented a continuous course of rapids; they were not dangerous, but they delayed our progress. After 10 o'clock in the morning we came, however, to a fall where the water rushed over two ledges, the first forming a cataract from 8 to 10 feet in height, and the second from 15 to 16 feet. Near the foot of the latter rose, from amidst the foam of the cataract, a solitary rock in the form of a huge pile, studded with laminar mica. The morning sun threw his rays upon the northern side of this singular rock, and rendered it of dazzling brightness—realizing the picture which Raleigh drew of Guayana, where every rock was described as argenteferous. While we were occupied in carrying our baggage overland, and drawing the boats after us, Mr. Goodall took a sketch of this cataract, which, for want of another name, I have inserted as Sir Walter Raleigh's Cataract in my map.

The heat at 2 o'clock in the afternoon was very oppressive. The thermometer rose to 142° in the sun. The barometer had fallen; at least it stood lower at 4 o'clock than the previous day; and our descent that day could not have been less than from 35 to 40 feet, which ought to have caused the mercurial column to rise. I have frequently observed that a high barometer predicts rain, while a low barometer, in rainy weather, frequently indicates a change for the better. The effect is therefore the reverse of what takes place in Europe.

13th.—Heavy thunder and rain rendered our night-quarters very uncomfortable, and we greatly felt the absence of our tents. We started in the morning during rain. The river continued its monotonous course towards the N. by W. It was now about 300 yards broad, and small hills, lined with low trees and thick bushes, approach its banks. Here and there are seen wide-branching silk-cotton trees (*Bombax spec.*), or the stately purple-heart, which rose above the lower vegetation, consisting of the wild arnatto (a species of *Bixa*), the water-guava (*Psidium aquaticum*), an Inga and numerous Jacana trees (*Triplaris Americana*), and Cecropias (*Cecropia peltata* and others of the same genus). There was almost a total absence of Orchideæ, a circumstance which seldom occurs in the tropical and moist regions of Guayana. The current is very trifling, amounting to about a mile in an hour, where it is not accelerated by rapids or

falls. The latter are caused by ledges of rocks of hornblende gneiss, here and there traversed by a vein of quartz. We halted for the night near the mouth of a small river, which joined the Curuni on its left bank; a few yards lower down another stream came in from the right. Our latitude this night was $2^{\circ} 34' N$. Here I suffered a loss which I felt very severely. It will be recollected that I lost a very fine Taruma dog at one of the cataracts, and of all the dogs I had purchased one only now remained—an animal the more remarkable from its being a cross-breed between the Taruma dog and the *Canis cancrivorus*, Desm. A jaguar during the night carried him off from the midst of our camp; and thus was I not only deprived of what I considered a treasure, but, what was worse, his place as a good purveyor of our larder could not be supplied in the wilderness.

14th.—We passed the river Sipariwini at half-past 7. The rapids continued, and the heat was oppressive in the afternoon. The thermometer rose, in the sun, to $135\frac{1}{2}^{\circ}$, a heat to which we were equally exposed, as the small size of our wood-skins or bark canoes did not permit the erection of anything to shelter us from the burning rays. I regretted this the more for the sake of Mr. Goodall, who continued indisposed; and I myself was then suffering under acute rheumatism.

We were drenched with rain. During the night a severe thunder-storm passed over our camp, against which the temporary tents, made of wild plantain-leaves, could afford no protection. I shall not easily forget one of the thunder-claps. I was just on the point of rising out of my hammock, to see whether I could not make the roof a little more water-tight, when I saw the tent clearly illuminated with a rose-coloured light; and the thunder following instantly after it, might have been compared to the firing off, close by, of the heaviest pieces of ordnance—

“ ’Twas listening fear, and dumb amazement all.”

I stood transfixed, anxiously listening whether I should hear cries of distress; but, as if Nature had been for a while appeased by the effort, the heavy rain ceased, and all was calm. The voices of our Indians relieved the suspense, which, during that awful silence, they had no doubt equally shared with me. On inquiry I found that all was well; and the electric fluid had no doubt struck the river close by. The following day we met with an accident. In descending one of the falls, the small boat which contained our kitchen utensils swamped and sunk. Our loss, however, was but trifling; and as the boat fortunately did not sink in deep water, we were able to recover it again. It was to be ascribed to the imprudence of our cook, a most ill-fated being, who, when I travelled without a European companion from

Roraima to the Cuyuni, on a former occasion, likewise sunk a boat; and we were not then so lucky, but lost every article of kitchen utensils, without saving so much as a plate, knife, fork, or spoon, or a grain of salt; and thus was I obliged to do without these comforts for nearly a fortnight. The rock which caused the cataract, in the present instance, was mica slate, which occurs much more frequently in the Curuni than in the other rivers we had passed. It is here and there traversed by veins of quartz.

The heavy rain had caused the river to swell. In the evening we halted near a small stream, which was pouring out its whitish waters with such impetuosity that they rushed for several hundred feet into those of the Curuni, forming a white band, narrow near the mouth of the river, and from thence spreading like the tail of a comet. We found several bark canoes tied to the banks of the river, and a narrow foot-path. We little thought that they would prove the last vestiges of man that we should see till we reached the Caribs at the lower Corentyne. We had been informed that a path of three days' journey led to the settlements of the Indians located at the Upper Sipariwini.

The cloudy state of the weather precluded my taking more than three altitudes of the * α Lyra when near the meridian; they were, however, sufficient to prove that our progress had been slow;* and I was therefore under the necessity of putting the expedition upon short allowance, and to declare war against all animated nature, not excepting the Iguanas, of which large numbers, roused by the sound of our paddles, jumped from the adjacent trees with a loud splash into the river, and were sure to cause us the heaviest disappointment by escaping from our pots. On the evening of the 17th we were successful enough to hook a large Paruaruima (*Phractacephalus hemiopterus*), measuring 4 feet 2 inches in length, and 2 feet 11 inches in girth. It is a pity that this fish is almost all head and tail. The mis-shapen head is covered, as it were, with a cuirass, and in the present specimen it measured 1 foot 5½ inches, and thus very materially diminished its usefulness as food for fifteen individuals.

In the afternoon of the 18th we found that the river took a western and frequently a southern course, consequently retrograde; its bed was so studded with isles and falls that it appeared almost impossible to find a spot where it flowed gently along. Small hills of from 200 to 300 feet in height approach its banks, and it divides into so many channels that we scarcely ventured to lose sight of each other for fear of being separated. Mr. Goodall, who was now in tolerably good health, had unfortunately, since we had been put upon small allowance, been restored to his best

* The latitude was, according to these observations, 2° 48' N.; and a set of hour angles gave for our distance, west of our embarkation, about 22 miles.

appetite, and both of us encouraged the rest of the crews by paddling like themselves from morning until we pitched our camp at night.

Numerous ledges of rocks or bars extend right across the river in a N.W. and S.E. direction, and cause dangerous falls. These rocks were, for the most part, composed almost wholly of felspar. On arriving at one of the cataracts, I led the way with my own little bark, and the others followed. Hitherto, thanks to a kind Providence, we had been successful, though we came from time to time in rough contact with some sharp rock which pierced our skiffs, none of them half an inch in thickness,* and caused the water to spout in like a fountain, when pieces of shirts and trousers were resorted to for stopping the leak, and which always proved sufficient for the purpose. With the exception of one bark canoe, which we were obliged to abandon, we have hitherto suffered no loss since the canoe with our kitchen sunk to the bottom.

The labyrinth of islets (indeed the river cannot be less than 8 miles in breadth, at least this is the distance between hills and hills)—the numerous cataracts and rapids—induced us to call this region, the Falls and Rapids of the Thousand Isles.

The flora of these islets is not much diversified: the *Elizabetha coccinea*, the Jacaranda, the *Laurus surinamensis* which margined the river's banks, a *Strychnos* with clusters of white flowers of delicious perfume, the *Clitoria arborea*, struck me as not hitherto observed. I ought not to forget an uncommonly pretty *Asclepiadæ*; its flowers, of a rich velvety purplish-brown colour, hung down in large racemes. It appears to be a new genus of this difficult order. The rocks, where they were above water, were covered with an arborescent *Solanum*; *Orchidæ* were still wanting, at least I saw none near the banks nor in the adjacent forest, where we encamped. Our latitude was this night (September 19th) 3° 21' 30" N.; our progress westward from our embarkation 41' 47" in arc. During the last two days we had made 13½ miles, westing. This slow progress, and the probability that we should not find human habitations for a week or ten days more, obliged me to curtail our allowances still more, so that we were reduced to 4 ounces of cassada-bread or farinha de manioc, and such game and fish as luck procured us. The river being swollen, it was very difficult to obtain fish.

20th.—Islands, rapids, and falls continued: the deep and sonorous roar of falling waters which broke upon us from time to time as the woods carried the sound, apprized us of some great obstacle which we would have to surmount; and after paddling for about 2 miles, we found ourselves at the head of some falls, the height

* The one I was then in was only four lines, or one-third of an inch; Mr. Goodall's, which was the thickest, five lines.

of which was 52 feet,* and which for grandeur vied with any I had seen in my peregrinations. We had here to unload and carry the baggage and boats more than a mile over low hills about 150 feet high, to the spot where the river again becomes navigable; a labour which it took us more than a day to accomplish. The rocks at the head of the cataract were gneiss, and here and there coarse quartzose sandstone or conglomerate cemented by iron; but near the foot of the cataract huge blocks were lying about in the greatest confusion, as if they had been shattered by some great convulsion of nature. These blocks consist of fine-grained gneiss, traversed by layers approaching in appearance decomposed epidote(?) The gneiss is stratified, and on some of the blocks it appears much contorted.

This delay gave me an opportunity of noting the hourly observations of the barometer and thermometer on the 21st of September, which were as follow:—

Hourly Observations on September 21, 1843; Height, 330 feet above the sea.

Instruments.	Hour of Day.	Highest.	Hour of Day.	Lowest.	Mean.
	h.	Inches.	h.	Inches.	Inches.
Barometer	11 A.M.	29.712	7 P.M.	29.640	29.668
Attached Thermometer . .	1 P.M.	84° 56	5 A.M.	71° 60	75° 56
Detached Thermometer . .	1 P.M.	85° 00	5 A.M.	71° 50	75° 70
Wet-bulb Thermometer . .	1 P.M.	79° 40	5 A.M.	71° 00	74° 24
Temperature of the river . .	2 P.M.	88° 00	3 A.M.	81° 70	83° 23

It was fortunate that the cataract obliged us to stop this day, as our reduced circumstances would scarcely have allowed such a delay for the purpose of making observations.

Since we had entered this continued series of rapids and falls we lost all sight of game and fish. We had to preach philosophy to our murmuring stomachs to satisfy themselves with 4 ounces of bread. It is a great misfortune at such a time to be blessed with a good appetite.

We started early in the morning of the 22nd, from the foot of Frederick William's Cataract, under which name, in honour of my sovereign, the King of Prussia, this magnificent fall will appear in my maps; and which, according to the chronometer, was 45' 15" west of our embarkation, or 57° 19' 54" west of Greenwich.†

The river widened considerably, extended no doubt by the numerous islands. In the afternoon it presented, where the sight

* The whole height of these falls, from their head to the place where we embarked again, was 65 feet, according to the barometer.

† I did not succeed in procuring any observations for latitude; but as our progress on the 20th was trifling, and the latitude having been found the night previous to be 3° 21' 30" N., and on the night of the 23rd, 3° 38' 38", by assuming Frederick William's Cataract 3° 30' N., we cannot be a mile from the truth.

was not interrupted by islets, a breadth of about 4 miles; ledges of gneiss traversed the river in a N.N.E. and S.S.W. direction, one following the other, like furrows in a ploughed field. Large spherical blocks of a coarse-grained granite, or at other times shaped like an obelisk, were lying upon these ledges. A small chain of hills, their highest summit about 400 feet above the river, extended from the left or western bank of the river, for about 2 miles inland, and closed the background of the picture, on approaching from the N. as we did. Our latitude, determined from some very good observations, was $3^{\circ} 38' 38''$ N., our distance W. $54' 43''$ in arc, from our embarkation; our course since the 17th had been N.W. by W.

We nearly lost one of our canoes the next morning on descending a fall. Some of the baggage got wet; but the sun shone bright, and the mishap was soon remedied. We paddled on unceasingly for nine hours, and stopped at night on a small island, our larder enriched with some Iguanas and a crane; the latter promised a delicious soup; but unfortunately we spoiled it by using gunpowder as a substitute for salt, of which we had been deprived for some days past. The taste of the nitre and sulphur perfectly spoiled an entertainment so eagerly anticipated by our hungry stomachs.

24th.—While hauling one of the boats over a rapid, the poor Arecuna Indian, who, the reader of the Geographical Journal will perhaps recollect, was severely wounded by a sting-ray during our ascent of the Takutu, met with a similar accident this day. He suffered most excruciating pains; the wound had been inflicted near the ankle. The juice of the moco-moco (*Caladium arborescens*) having been recommended to be taken inwardly, with a little spirit, and outwardly squeezed into the wound, was tried, with the exception of the spirit, of which we had none, and for which water was substituted, but it did not appear to diminish the pain.

The rocks which formed the rapids were compact red felspar, stratified in an E. and W. direction, and traversed from N. to S., so as to form oblong squares. Large blocks of the same rock were lying upon them.

We halted at 11 o'clock at the head of a large cataract, and it became evident that we should have to unload the canoes, and carry the baggage overland. While I was looking out for a fit place to transport it to the foot of the cataract, I observed on the banks of the river the remains of some old huts, and, on closer inspection, found that we were at the path which leads from the Corentyne to the Essequibo; and, as a further proof that my surmises were correct, we now discovered two corials hauled up on the land, one above 40 feet long, the other about half that

size. While ascending the Rupununi last March, I saw at one of the settlements a Carib, who told me he had lately come with others from the lower Marowini, and entered the Corentyne to join their relations at the Rupununi, and that they had left their craft at the place where the path leads from the Corentyne to the Essequibo. We were now persuaded, that after so many toils, we had, at least, reached a part of the river which we knew had been visited by human beings, while I am almost convinced, that for ages man has not traversed that part of the river which we had navigated since we left the spot where we found the old rotten bark canoes, and since which period (Sept. 15th) we had been struggling with cataracts, and had suffered half starvation. Though we were well aware that our trials were not yet over, it was consoling to know we were navigating the Corentyne, and that men, before us, had passed up and down this part of the river.

The antiquity (as far as this word can be used in things relating to America since its re-discovery) of this path rendered it very interesting to me. It must have been already known in the seventeenth century; at least D'Acunha found, in 1639, among some of the Indians near the Rio Negro, iron tools, such as hatchets, bills, knives, &c.; and on inquiry, was told that they had received them from the people who dwelt in the country nearest the sea on that side, and who had light hair, by which D'Acunha supposed they alluded to the Dutch. Dr. Southey, while speaking of Ajuricaba, one of the most powerful caciques of the Manaos, and who lived about 1720, observes that he made an alliance with the Dutch of the Essequibo, with whom he traded by the way of the Rio Branco. The trade on his part consisted in slaves. In order to obtain them, he hoisted the Dutch flag, scoured the Rio Negro, and captured all the Indians on whom he could lay hands.* Only a few of these slaves were carried down the Essequibo, the greater part being taken to Surinam by the path which, from the inlet Primoss, leads across the river Berbice to the Corentyne, which river it meets at the cataract where we were encamped, and this path is still called among the Macusí Indians, the slave-path, or Tuari Yemori, and this is likewise the way by which Don Francisco Jose Rodriguez Barata went twice from the Amazon to Surinam, on affairs of his government, in 1793.† Though I had only walked along that path from the river Berbice to the Essequibo, my present journey

* Southey's 'History of Brazil,' vol. iii. pp. 710, 11. Ribiero reports that Ajuricaba was taken prisoner with 2000 (?) Indians, while Jao de Maya da Gama was governor, and carried in chains to Para; and a mutiny on board the vessel having been discovered, he jumped into the river to drown himself.

† Humboldt's Personal Narrative, vol. v. p. 480.

made me likewise acquainted with the part where it strikes the Corentyne.

The Caribs, those scourges to the less valiant tribes, settled from Surinam along the Rupununi, and by means of another much frequented path held intercourse with the Caribs of the Caroni and the Orinoco.

The scenery is uncommonly picturesque near this cataract; blocks of granite of a spherical form, from 50 to 60 feet high, lie about in great confusion, crowned with tropical vegetation; the wax-flowered *Clusia*, the yellow *Cyrtopodium*, the thread-like *Rhipsalis* with its pearly fruit and upright or columnar cerei, give to these singular rocks a marked tropical appearance. We here enjoyed, after a long period, the first emotions of satisfaction, and I gladly availed myself of the privilege of discoverers, more particularly as I could not at that time learn whether the cataract possessed a name or not, to introduce it into my map as Lord Stanley's Cataract.* Upwards of 50 circummeridian altitudes of the stars, δ Cygni, α Pavonis, α Indi, α Cygni, α Cephei, gave me as a mean $3^{\circ} 59' 16''$ N. for the latitude.

Our Indian discovered with great joy some Kaitshara or Penguin (*Bromelia karatas*) with ripe fruit. This fruit resembles a banana in miniature, and grows in the middle of the plant, perhaps from 80 to 100 nestling together. They contain a succulent flesh of an agreeable vinous taste when ripe; and although this was not quite the case in the present instance, they were highly acceptable, and by boiling them we counteracted their astringency. They were the more welcome, as neither of the huntsmen we had sent out on our first arrival had brought in any thing, and the attempts of our fishermen during the night had met with no better success.

The Indian whom I had met at the Rupununi, and who told me of having left his corial at the path, had given me permission to use it, if I should want it; and he directed me to deliver it to his brother, the Carib Chief William, at Tomatai.

According to the barometer, we were still 230 feet above the sea, and we had yet to overcome many an impediment before we could get into smooth water. I therefore took the corial, and had it repaired as far as it was possible to do so in a few hours.

We started on the morning of the 25th of September at half-past 6 o'clock; but we had scarcely proceeded a mile, when another cataract, where we again had to unload, impeded our progress. The rocks, which here consisted of quartz and felspar pebbles cemented by iron, were lying about in the greatest con-

* On our arrival at the Carib settlement, I learnt that it was known to them under the name of Aritapu; I have, nevertheless, preserved the name I gave it under our first impressions.

fusion imaginable, and had the appearance of having been vitrified in a furnace. On some spots where the iron cement was more prominent, they were so smooth, that we had to guard ourselves against slipping. The smaller rocks, where heaped together, looked strikingly like the refuse from a smithy. Our course varied between N. and N.N.E., the river still studded with islets. While we turned round one of the islands, my boat being as usual in advance, we saw a large Puma (*Felis concolor*) drinking at the margin of the river; though he observed our boat, he scarcely took any notice of us; unfortunately the only gun we had in the boat was wet from the severe rain, and it missed fire. We were not 15 yards from him, and he leisurely put himself upon his haunches like a dog, and appeared rather to have every inclination to attack our boat than to be frightened at our approaching him. The Indian Sororeng was so exasperated at his audacity and the inefficient gun, that he threw a large piece of wood at him which was lying at the bottom of the boat; this induced him to return leisurely into the wood.

Violent rain induced us to pitch our camp in the afternoon of the 26th as early as half-past 1 o'clock, and we were so hungry that we thought success might perhaps crown our endeavours to procure some game or fish. The Indians brought in a Maam (*Tetrao guianensis*, Gmel.) of the size of a pullet, which to divide among fifteen would have required a pair of compasses and scales.

We saw on the morning of the 27th a large amphitheatre of hills about 200 to 250 feet high, which surrounded the broad expanse of the river, here from E. to W. about 3 miles broad, the hills covered with a thick forest of umbrageous trees. The intermediate space between hills and hills was broken up by islets; blocks of granite heaped up in the most fantastic forms met the eye in every direction, and predicted the dangers we should have to encounter. In advance of the others, I gave orders to the coxswain to halt at one of the rocky islets, and climbing to the summit, our route lay before us. The remembrance of what I felt at the sight before me, will remain as long as memory lasts. Enormous masses of stone, black as iron, extended as far as the eye could reach, against which the river dashed its waters with the greatest fury, the white foam forming the strongest contrast with the gloomy tint of the rocky masses; and when my looks fell upon the miserable skiffs to which our lives would be confided, skiffs whose construction could not boast of a woody fibre, when I recollected the privations we had all suffered and our consequently enfeebled state, our only hope of surmounting the dangers before us rested upon Him who is almighty, and whose aims and ends we poor mortals cannot fathom.

It was impossible to give orders, or maturely to consider and pre-arrange what was to be done; we had to leave our actions to circumstances, and till the moment should arrive for averting the dangers we had to brave. As I have generally done, so I did in the present instance: I took the lead in my boat and ordered the others to follow it at the necessary interval, if it should pass successfully, or to profit by any disaster which might befall us, by avoiding the danger. Far be it from me to seek to impress the reader with the belief that I felt no apprehension while my light skiff danced upon the contending waves, and passed between the black pointed rocks that beset its course—though I have passed hundreds of cataracts, it would be sheer bravado to assert that I did not breathe quicker or feel my chest more contracted than usual when passing a fall; but I may with truth declare that those feelings were trifling when compared to what I experienced when, having arrived at the foot of the cataract, my boat bore round to await the descent of the others, and I witnessed the imminent danger of every successive skiff as it is hurried down with the swiftness of an arrow, and when the slightest mismanagement might entail destruction to those who were in it. And how frequently had I not to endure this painful excitement during the course of this day! I now called to mind, that about the same time of the year, in 1836, when at the foot of the great cataracts, the Caribs had told me it was impossible to pass the falls of the river above them, and that it was only when the river was full to overflowing that they could be surmounted.

Worn out with fatigue, we halted at 4 o'clock in the afternoon. We had no guides, and circumstances, and our experience of former situations of the same nature, could alone direct us in selecting our path, where, as far as the eye could reach, rocks and foaming masses of water were visible. We had to contend with legions of ants for the possession of our camp, and received many a bite while preparing our night quarters.

Hunger is a very disagreeable feeling; one's ideas get confused, and there is felt a vague sensation which ultimately engenders headache, and also an uneasy spasmodic contraction near the region of the stomach: such were my feelings this day; I did not dare inquire after those of the others—I was sure their answers would have aggravated my own suffering. The report of a gun roused me from my reverie: what can the lucky hunter have killed? was my first thought, and the moments which succeeded seemed as hours. At last an Indian arrived with heavy step, carrying on his shoulders a large black female spider-monkey. I glanced at Mr. Goodall, whose countenance depicted disappointment and disgust, but which sad necessity and the large vacuum that two ounces of farinha must have left in his stomach

induced him to get the better of. He watched the preparations as the Indians proceeded step by step, first singeing off the hair from this human-like form, and then placing it in an upright position, with the arms crossed, when, the skin looking white now the hair was off, the sight proved too much for him, and I myself felt something like disgust at the meal before us. The sound of a heavy body falling on the ground drew my attention to a different direction, and, to my great joy, I beheld a fine young forest-deer, over which young Ammon stood, leaning on his gun with proud satisfaction. This was indeed a happy turn in our affairs. I have tasted the smaller kind of monkeys several times, but have never partaken of one which approached so nearly to the human form as this. The Indians were less scrupulous.

28th.—We had to unload our craft twice in the course of the morning. In order to avoid the great cataracts, I sent off at the dawn of day the interpreter Sororeng and another Indian to seek for the portage which I knew from my former journey up the Corentyne to exist, but the position of which the Caribs had kept secret from us in 1836. We had been fortunate enough to select the right direction for our descent, and the leading canoes had already arrived at the embarkation by half-past six o'clock. We now unloaded for the third time, and took baggage and boats for about a mile overland, and arrived at the other end of the portage. I was here among objects familiar to me—the great cataracts of the Corentyne. Barometrical observations gave me for the descent from the place where we disembarked to the deep and extensive bay at the foot of the great falls 90 feet; but from Lord Stanley's cataract 163 feet.

Recollecting how successful we had been in fishing and hunting while here in 1836, we did not proceed any further, and all hands that could hold a hook and line, or a rod, or were able to shoot, were sent in quest of game or fish; the hunters returned unsuccessful, and the fishermen reported that they had not had a single nibble.

How shall I describe the three succeeding days! The river being much lower than we had found it in 1836, rapids and falls impeded its course where seven years before we had found no difficulties, and now, with increasing labour, our exhausted state was the more keenly felt. Several of the Indians suffered from fever, and our little company was so divided that we could scarcely spare the physical force of a single individual; the greatest persuasion was therefore necessary to encourage our people, and show them in perspective the plenty they would enjoy when we should once gain the lower Corentyne and the settlements where we had sojourned on a former occasion.

We started from the Great Cataracts with 8 lbs. of farinha (a

coarse kind of tapioca), and had a journey of from 3 to 4 days before us ere we could reach human habitations, supposing even that the Indians had not removed. I had therefore to reduce our allowances to 3 ounces a day. Since our provisions had been so short, Mr. Goodall scrupulously divided the quantity of farinha into 15 portions, and we allowed every other person to take his share, reserving the two last for ourselves, in order to prove to the crew that we did not wish to fare better than they. I had been in similar straits before, and the small quantity which fell to my share was partaken of in small pinches, and thus prolonged the enjoyment; but poor Mr. Goodall knew no economy in such a case, and dispatched his share instant—the consequence was, he suffered more severely. In spite of our debility, we paddled from daylight until 5 and 6 o'clock in the afternoon, and from the 29th of September to the 1st of October we failed in shooting any bird, or catching any fish, to add to our meagre allowance.

On the morning of the 1st of October we divided the last of our provisions, amounting to something more than 2 ounces to each individual; but happily, on the evening of that day, after having travelled 26 days without meeting a human being, we entered the Carib settlement of Tomatai.

We had started from our night camp very early, but a heavy easterly wind and the broad expanse of the river caused waves for which our craft appeared but ill calculated, and our progress during the morning hours was not very rapid. About 5 o'clock I recognised familiar objects: Christian, the Carib settlement, was before us. The grass had overgrown the path which leads from the landing-place to the houses, and told us plainly that the place was deserted. This was a great disappointment; we however found some papaw-trees bearing fruit in the abandoned provision-fields; these we considered more than delicious, and, somewhat refreshed, we urged on towards Tomatai.

The corials tied near its landing-place, and a couple of dogs gambolling among the rocks in front of it, presented to our longing eyes a most delightful picture. Our skiff had scarcely touched the ground when I immediately jumped out and hastened towards the huts, unobserved by any one till I approached quite close. Old Williams, at this time the Indian chief of the place, was at work upon a basket; he raised his head, and though seven years had elapsed since he had seen me, and without having the slightest knowledge of my coming, he immediately recognised me. When I told him of our sufferings, and whence we had come, the good-natured squaw hastened to bring some cassiri, which, for the occasion, she tendered in a fancy tumbler, and a plate of delf loaded with fish and fresh cassada. Mr. Goodall, who soon followed, was equally served, and the smoking pepper-

pot and some cakes of cassada were placed before our starving crew.

Old Williams's curiosity about the Indians who inhabit the upper Corentyne was insatiable, for all that the Caribs knew about that river extended no further than to the slave-path; above that, in their belief, were regions inhabited only by the water-mama, sprites, and hobgoblins.

The next morning I continued my journey. The previous day had convinced me of the impossibility of entering the searreach of the Corentyne with our bark canoes, and I accordingly hastened towards the post, to make arrangements for proceeding without delay to the coast. Mr. Goodall had been desired to follow the day after, in order to allow our worn-out crew a day of rest.

The hospitality so peculiar to the West Indian was heartily lavished upon us on our arrival at the cultivated parts of the colony, and we ultimately reached New Amsterdam, in Berbice, on the 9th of October, and Georgetown, the capital of British Guayana, on the 12th of October, 1843.

We had every reason to be grateful to a kind Providence which had thus conducted us safely through so many dangers, had crowned with success the mission which had been our object, and enabled us to perform our arduous duties without the loss of a single human life.

These satisfactory feelings were greatly increased by the circumstance that, with the exception of a few thermometers, and the mountain barometer, constructed according to Fortin's plan, the instruments which were carried over several thousand miles of pathless regions were brought safely back to the colony, where I thus had an opportunity of verifying them.

The general map of British Guayana which I have constructed from my exploratory expeditions is based upon the following data, viz., the determination of the latitude of 174 different points, obtained by 4824 altitudes of heavenly bodies, and the determination of hour angles for meridian distances, and the rate of the chronometers for 223 different stations, ascertained by 5801 altitudes of the sun or stars.* The meteorology of the regions I have examined has received particular attention. The barometer, with the attached and detached thermometers, were regularly observed wherever we remained stationary; besides which, the temperature of the water, the evaporation, the quantity of rain

* If from the above observations, amounting to 10,625, we subtract 230, made by Lieut. Glascott, R.N., then assistant surveyor of the boundary expedition, the remainder were taken by me individually, and that number does not include the lunar distances and altitudes connected with those observations, which amount probably to 5100 more.

which fell, the extreme of the heat of the sun, and several other meteorological investigations were carried on wherever circumstances allowed it. The number of barometrical and thermometrical observations alone amount to 6692, not taking into account the other meteorological data which I procured during my journeys.

It is no doubt very difficult, under any circumstances, to convey with safety a collection of objects of natural history from foreign parts to Europe; but the greatest difficulties are connected with transporting objects of that description over pathless regions, such as those in the interior of Guayana, where beasts of burden are unknown, and where, on arriving at the rivers, still greater hazards are encountered in the shape of dangerous cataracts and rapids.

I have frequently lost, by accidents which occurred to our boats, the collections which I had brought together with the greatest exertions, or, as in the instance related in the foregoing pages, have been obliged to abandon them. It gives me, therefore, great pleasure to be enabled to add something to the national collections in the British Museum, where I have deposited about 2500 specimens of dried plants, 100 specimens of woods, a quantity of dried fruits, a flower and young leaf of that wonderful plant the *Victoria Regia*, and several other botanical objects preserved in spirits; a collection of birds' skins; upwards of 100 specimens of fishes, in spirits, from the rivers of the interior of Guayana; a geological collection extending from the Orinoco to the equator; and an ethnological collection, consisting chiefly of numerous weapons and the household utensils of the Indians of Guayana.

The Royal College of Surgeons has been presented with some skulls and with a perfect skeleton, as well as a number of plaster casts of Indians. The model-room of the Admiralty has received 106 specimens of woods, many of them accompanied by dried twigs, some of them with the flower of the tree which furnished the specimen; and different scientific societies and institutions have been presented with various curiosities from Guayana. The Royal Garden at Kew has received several living plants, chiefly of that interesting family the Orchideæ.

I trust, therefore, that my exploring tours in a province so little known previous to my investigations, and which combines tropical exuberance with fertility and extent, may not only have contributed to the extension of geographical knowledge, but may also have proved beneficial to different branches of natural history.

I cannot conclude this memoir without drawing particular attention to Bunten's siphon barometer, whose advantages are incalculable for those who traverse wild and pathless regions.

The barometer No. 430 of his construction has accompanied me during my last expeditions through forests and over mountains, and in my boat navigation of impetuous rivers; and on my return to London I found, on comparing it again with the barometer at the Royal Society, that, in spite of all the severe trials to which it had been exposed, it had not varied. On previous expeditions I have used Troughton's, Englefield's, and Newman's barometers, and though every precaution was taken with them, I never succeeded in bringing any one of these instruments safely back to the coast regions.

The all-interesting question in physics, terrestrial magnetism, was not neglected during my journeys in Guayana, and I found opportunities for vibrating a pair of Hansteen's needles (the use of which Colonel Sabine, R.A., had kindly procured me*), at 17 stations, extending N. and S. from the 8th to the 1st parallel N. of the geographical equator, and from the 56th to the 62nd meridian W. of Greenwich. The magnetic inclination, and chiefly the declination, were likewise ascertained in many instances.

I have now drawn attention to the general results of my exploring tours; many of the elements collected remain in their crude state, my active life not having permitted me as yet to turn them to account, but I trust an opportunity will be afforded me for working up these materials, in order to advance our knowledge of the physical geography and natural history of Guayana, as also of MAN, chiefly as he is exhibited in the few remains of the aboriginal races, thinly dispersed over many hundred thousand square miles, and fearfully hastening, as by a divine decree, to complete extinction.

II.—*Memoir of the South and East Coasts of Arabia.* By Captain STAFFORD BETTESWORTH HAINES, I. N.

Part II.

HAVING, in Part I. of my Memoir of the South and East Coasts of Arabia,† attempted a description of that part which had been minutely surveyed as far as Misenát, I commence from thence, trusting that, though all parts of the coast are not actually laid down by survey, I shall be able, from my knowledge and experience of the localities of the different points, to give some useful information to the mariner and to the geographer; and, in so

* They are the needles L (a), L (b), mentioned in Table LII. of the Magnetic Survey of Great Britain, and worth their weight in gold.

† Journal of the Royal Geographical Society, ix. 125.